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COMPUTERWORLD

Top-dollar CIO to retire

BY ROSEMARY HAMILTON
CW STAFF

NEW YORK — DuWayne Peterson, the high-profile chief information officer at Merrill Lynch & Co. who commanded a $1 million compensation package, will retire later this year, the company announced last week.

Edward Goldberg, a 30-year veteran at Merrill Lynch who is currently a senior vice president and director at the Professional Securities Services Group, will take over for Peterson.

Peterson plans to step down in June 1991 and will continue as a consultant for the firm. He insisted the move has nothing to do with either the recent corporate reorganization at Merrill Lynch — which dissolved two business sectors into one corporate entity — or the ongoing realignment of information systems.

Since late 1989, the company's IS group has shifted from centralized to decentralized management and then back to a centralized operation just a few months ago, according to Peterson.

Peterson said his 1991 retirement was planned when he joined Merrill Lynch in 1986.

"This is a personal timetable driven since the day I walked in the door," said Peterson, who will be 59 at the time of his retirement. "I wanted to get this done in five years and get back" to California, where he worked for Security Pacific Corp. before joining Merrill Lynch.

Peterson said he will begin working immediately on the transition with Goldberg, who was not available for comment. In an unrelated move last week, Security Pacific Automation Corp. named John Singleton president, replacing Michael Heschel, who resigned in November (see story page 8).

Andy Freeberg

Merrill Lynch IS chief Peterson *says the easiest job for his successor, Edward Goldberg, will be working with the business units. 'What will be difficult for him is knowing what is essential information technology. That's probably where my [consulting] role will come in.'*

Excel to renew Lotus assault

BY JAMES DALY
CW STAFF

The first rumblings of a potentially major tremor in the spreadsheet market may be felt Wednesday when Microsoft Corp. is expected to unveil a more visually arresting version of Excel that observers said could ride on the coattails of Microsoft's successful Windows 3.0 operating environment. The move could dramatically reshape vendor market share, analysts said.

The enhanced visual features of Windows 3.0 are expected to unlock the latent potential of Excel, which was critically well received but has lagged behind the market leader, Lotus Development Corp.'s 1-2-3 spreadsheet.

"Excel has always been hampered by its association with Windows," said Peter Rogers, an analyst at Robertson, Colman & Stephens, a research firm in San Francisco. "But now, Windows is an advantage and a significant one at that. The conclusion is clear: Lotus has a lot to worry about in the spreadsheet market."

Excel 3.0 plays off the graphic strengths of Windows 3.0, early assessors said, and it addresses the complaints of users who have clamored for more graphics-intensive spreadsheet functions.

"We don't just need better ways to manipulate the data, but better ways to get people to understand the data," explained John Winterhalter, MIS manager at 3M Corp.'s Commercial

Continued on page 6

Running the numbers

While Excel has carved out a respectable share of the spreadsheet market, its sales fall far short of Lotus 1-2-3's

Estimated 1990 shipments (in thousands)

	Worldwide	U.S.
Lotus 1-2-3	1.7M	935
Borland	600	420
Microsoft Excel	400	200
CA Supercalc	275	110
Other	349	80

Source: IDC — CW Chart: Tom Monahan

LANs satisfy Blue Shield MIPS craving

BY JOANIE M. WEXLER
CW STAFF

CAMP HILL, Pa. — The nation's largest Blue Shield plan and Medicare contractor has turned to Token-Ring local-area networks to deal with a processing crunch that was threatening to drive its mainframe costs sky high.

Blue Shield of Pennsylvania decided to rethink its entire computing strategy when it realized that claims growth of 15% per year was munching four additional MIPS of CPU power each month.

The insurance carrier is not thinking "smaller is better" so much as it is trying to run centralized and decentralized computing strategies in harmony.

The LANs will complement rather than replace the company's four mainframes — two IBM 3090s and two Hitachi Data Systems Corp. machines. In fact, the insurance carrier said it is entertaining the idea of adding a fifth mainframe to run IBM's

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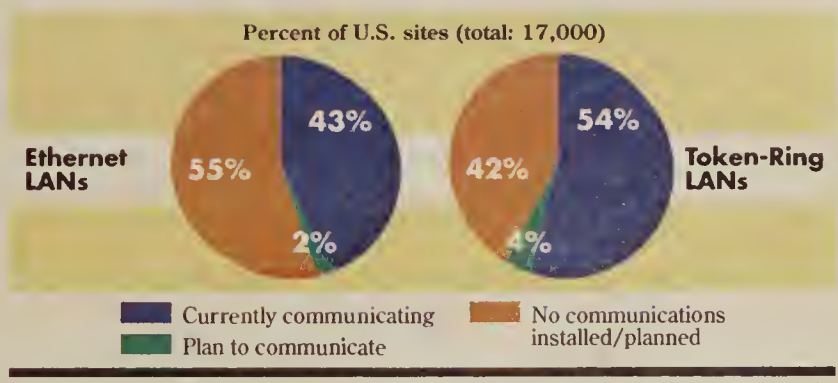
Tied in

LAN-to-host communications links are more common with Token-Ring LANs than with Ethernet



Source: Computer Intelligence — CW Chart: Doreen St. John

DEC slams door on upgrade fees loophole

BY MARYFRAN JOHNSON
CW STAFF

Digital Equipment Corp. customers who upgrade their machines through third-party resellers will be facing hefty new charges for the VAX/VMS operating system license after an abrupt shift in DEC's licensing policy, industry analysts and resellers confirmed last week.

At issue is DEC's decision to begin reinforcing a previously ignored policy to charge customers the full value of a VAX/VMS operating system license when they buy upgrade boards from sources other than DEC. In the past, these "in-cabinet, in-tier" CPU upgrades took the software license along at no extra charge.

What DEC is calling a "policy clarification" could slap a licensing fee of more than $60,000 on an in-cabinet upgrade from a VAX 6210 to a 6310, for example, while the CPU itself would cost less then $3,500 from a reseller.

"This is creating a fair amount of contention out there," acknowledged Pat Spratt, DEC's software business manager. "We are talking to dealers and customers, and our intention is to continue working with them."

DEC officials are re-examining the policy and will announce any revisions to it by Feb. 1, Spratt added.

The DEC review was prompted by a flood of phone calls unleashed recently by an open letter from the 138-member Digital Dealers Association in Chelsea, Mich. In the letter, the association detailed DEC's new software stance to its members, urging them to pass the word along to customers.

"DEC is changing an upgrade practice they have condoned for

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NEWSPAPER

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Executive Report — Good planning integrates new architecture with existing structures. Page 65.

Oracle back in the black, but questions remain about whether the company's quick fixes will be sustained. Page 6.

Technology Analysis: 486 systems. Compaq's entry is the fastest but most costly. AST's 486/25 packs less power, low price. Page 42.

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8 Former **Security Pacific Automation** head John Singleton returns to fill his own shoes.

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Quotable

"My ultimate motivation was to be a bum in the park, and that doesn't go far."

KEITH WILLIAMS
BEN & JERRY'S

On his unusual route into information systems. See profile page 59.

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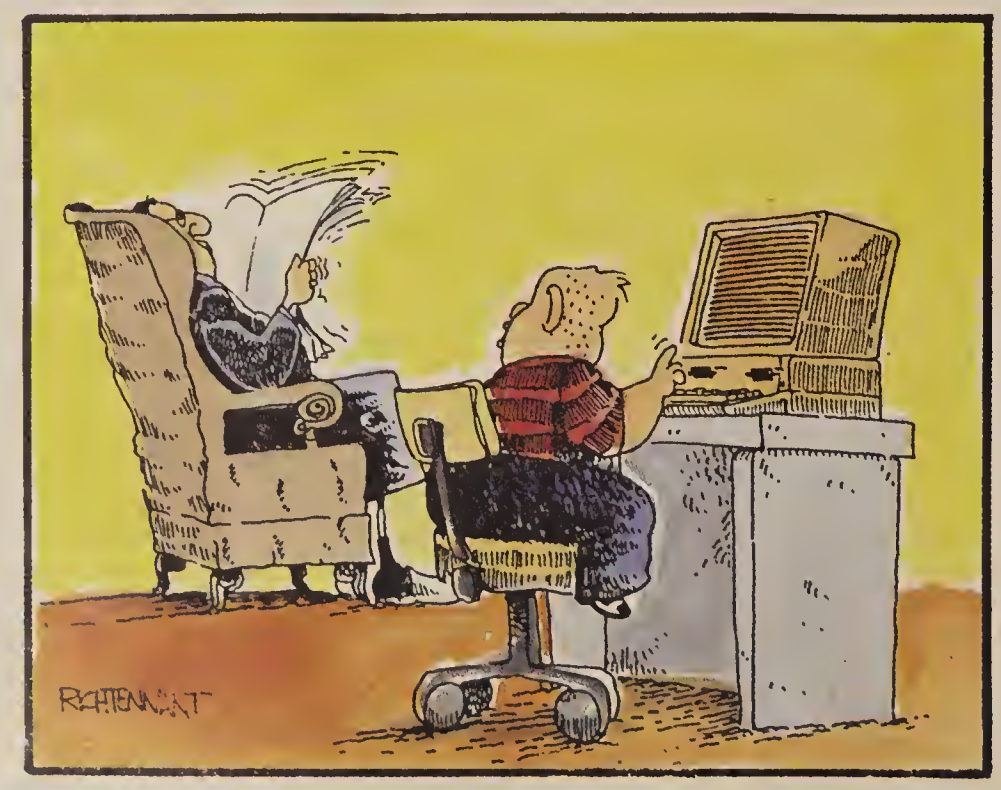

"GUESS WHAT, DAD - THOSE CHOCOLATE DISKETTES FIT RIGHT INTO YOUR COMPUTER, NO PROBLEM."

EXECUTIVE BRIEFING

■ **Merrill Lynch Chief Information Officer DuWayne Peterson will retire** in June, the company announced. Senior Vice President Edward Goldberg will take over the high-profile position at one of the world's largest financial services firms. Peterson said his departure is not related to recent executive shakeups at Merrill Lynch but is part of the plan he set for himself when he joined the firm in 1986. **Page 1.**

■ **IBM's push into outsourcing** is back in the news after a year-long lull. Southeast Bank in Miami and Riggs National Bank in Washington, D.C., will turn data center operations and employees over to IBM for up to 10 years. Analysts say these deals may be the first of many for IBM in 1991. **Page 12.**

■ **DEC is getting tough with customers** who choose third-party upgrades. DEC has revised its VMS licensing policy to charge customers for a second operating system license fee if they upgrade VAXs with third-party equipment. The Digital Dealers Association is up in arms, and DEC is re-examining the policy. **Page 1.**

■ **IS executive turnover continues** as CSX's Jack Cooper becomes the first CIO at Seagram. Separately, John Singleton returned to the helm at Security Pacific Automation about a month after Michael Heschel resigned. **Stories, page 8.**

■ **Despite economic gloom and doom,** the computer and semiconductor industries will enjoy healthy growth this year, the U.S. Commerce Department says. Fueled by corporate demand for automation to lower costs, the industry is projected to see double-digit growth in services and 6% growth in hardware sales. **Page 4.**

■ **Blue Shield of Pennsylvania** will make a major move to token-ring LAN-based processing for its transactions. The nation's largest Blue Shield/Medicare contractor says the strategy will complement rather than replace mainframes. **Page 1.**

■ **IBM's long-awaited laptop** will be introduced late this month or next, sources say. Users appear to be hungry for the Intel 80386SX-based unit, which will weigh 7.5 pounds and run at 20 MHz. **Page 7.**

■ **Concurrent filed for Chapter 11 protection** from its creditors, but customers are hopeful the vendor will survive by restructuring its debt. **Page 10.**

■ **Changing IS architecture is a large step** and not one to be approached lightly. The best approach starts with an inventory of current technology and proceeds with a blueprint of what the firm wants to achieve. **Page 65.**

■ **Retrofitting old PCs** instead of buying new ones may appear to be an attractive option to PC managers in recession-strapped times. But user experiences indicate that performance trade-offs are not always worth the savings. **Page 35.**

■ **Should IS professionals switch jobs?** Why is it so hard to find a position in the right field? A new feature, Fast Track, passes these and other questions on to a leading IS recruiter. **Page 78.**

■ **College grads heading into IS** are often taught outdated technology on less than state-of-the-art equipment. However, one college and several companies have joined forces to improve the situation, resulting in lowered training costs and sharper grads. **Page 91.**

■ **A potentially serious threat** to employee privacy lurks in employers' increasing need for health records and other data, a Conference Board report says. **Page 59.**

■ **On-site this week:** Unix is the healthy choice of Wellmark, a Westlake Village, Calif., provider of a health care information networks. Wellmark will forsake its IBM 3083 to process transactions on AT&T's RISC-based Unix processor. The conversion is a 5-year, $30 million project. **Page 29.**

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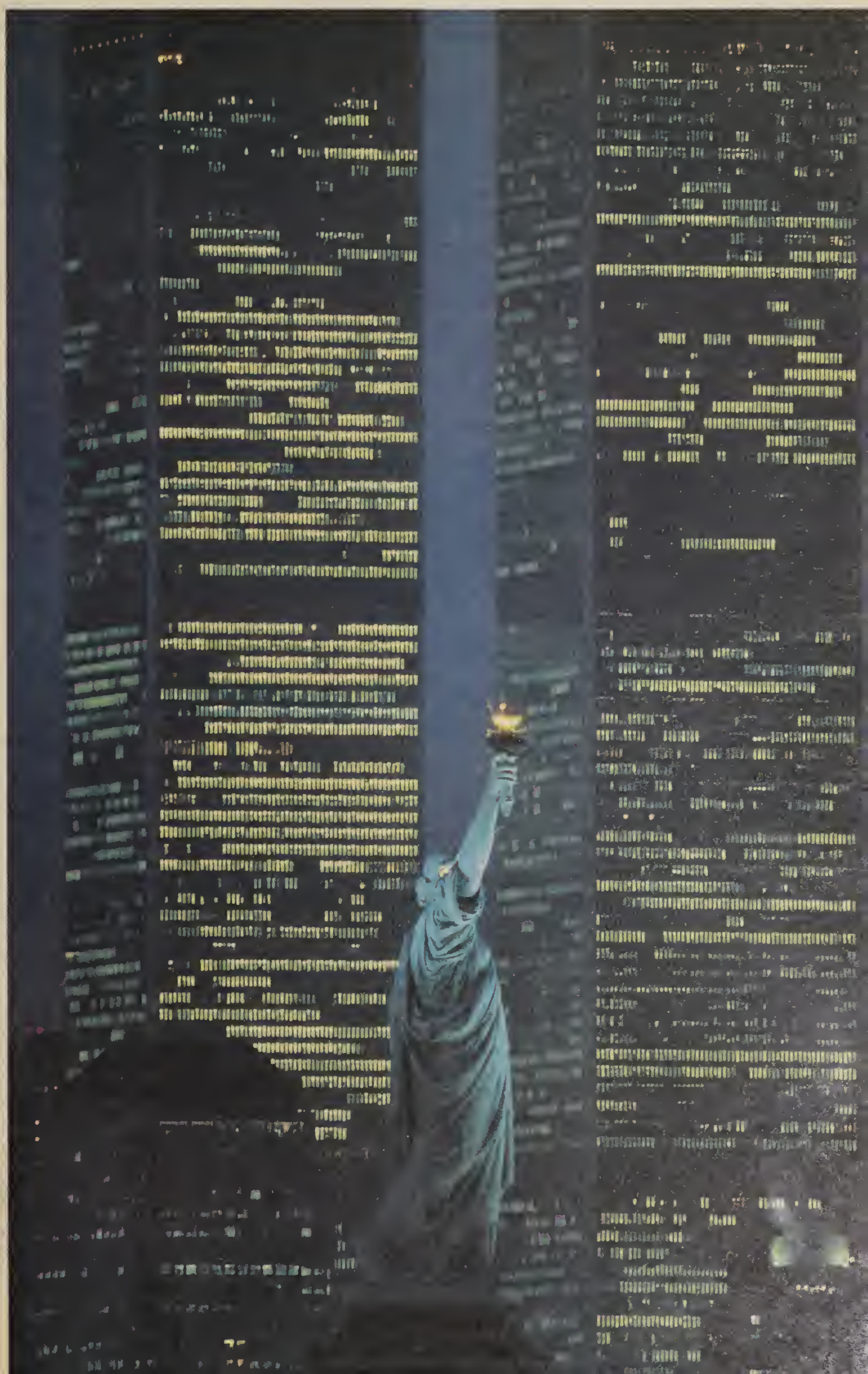

Feds say industry to fare well

Commerce Department sees high-tech silver lining to the economic cloud

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — Despite a weakening economy — and partly because of it — most segments of the U.S. computer industry will enjoy strong growth this year, the U.S. Department of Commerce predicted last week. Overall, the agency's annual analysis of 350 industries projected continued real growth for the nation's economy, but at a rate barely above 1%.

The Commerce Department's industrial outlook projected that sales of U.S. computer hardware will rise 5.9%, semiconductor shipments will climb 8.9%, computer software revenues will jump 20% and electronic information services will bring their providers 16% to 20% more revenue than in 1990. Sales by U.S. firms overseas will be especially strong, the report said.

"What is most striking is the continued strength of the high-technology industries," said J. Michael Farren, undersecretary for international trade. That strength stems from the international stature of U.S. firms and the trend to use computers and other high-tech gear to lower costs, he said.

"In general, the Commerce Department forecasts are very good, but unforeseen things can obviously happen to the economy," said Helga Sayadian, an official at the Computer and Business Equipment Manufacturers Association. She said the Commerce figures agreed closely with the Computer and Business Equipment Manufacturing Association's own forecasts, although the trade association predicted slightly worse performance for the economy overall.

Technology industries will grow faster this year than in 1990, the agency's report said. "Their more rapid growth is a strong indication of two important trends: increased use of automation to improve productivity and the expanded demand for information services," said Jonathan C. Menes, director of the department's Office of Finance, Industry and Trade Information.

"The demand by both U.S. and foreign firms for U.S. information services appears to be insatiable," the report said. Commerce predicted the following trends for information services:

- Data processing and networking services will grow 16% to $36.1 billion. That growth will be fueled by outsourcing and the increased use of electronic data interchange.
- Electronic information services will grow 20% to $10.8 billion and will continue at that rate at least until 1995. Uncertainties include efforts by the regional Bell telephone companies to ease restrictions on providing these services, concerns about privacy and security and possible amendments to the Freedom of Information Act.
- Revenue from computer professional services will rise to $52.2 billion, up 17.3%. The move to packaged solutions will curb the growth of custom programming but spur spending on training, documentation and software maintenance and enhancements.

"The numbers are great; we're very excited about them," said Luanne James, president of Adapso. "They are consistent with what we believe is happening in the industry. These trends will continue because businesses need information technology to be competitive."

Sales of packaged software by U.S. firms will continue to grow at a 20% clip, reaching $35 billion this year, the report said. The global market will reach $50 billion in 1991 and should break $100 billion by 1995, according to the Commerce Department.

Facing slack domestic demand and intense price competition, the value of computers and peripherals shipped rose just 4% overall in 1990, to $71 billion. Meanwhile, exports grew 15% to $24.7 billion. The industrial outlook said U.S. firms will continue to enjoy faster growth overseas but not enough to offset the skyrocketing imports of parts and peripherals.

The Commerce Department did not break out its hardware forecasts by system type but did offer these projections, in current dollars, from various sources:

- The global market for supercomputers will grow 13% to $1.7 billion.
- Mainframe shipments by U.S. manufacturers will edge up 3% to $13.4 billion.
- Global sales of U.S.-made midrange systems will grow by as much as 4% from $20 billion in 1990.
- Workstation shipments by U.S. firms will increase 30% to $11 billion.
- Sales of personal computers, including portables, to the U.S. market by all manufacturers will grow 6% to 9% from $31.8 billion, while sales of portables will jump 48% to $8 billion.
- The global market for all local-area network hardware will increase 27% to $8.1 billion.

What recession?

Computer industry growth projections for 1991 are healthy despite the general economic slowdown

1991 growth projections for selected industries (Dollars are in billions, not adjusted for inflation)

	1990	1991	Percent increase
Electronic information services	$9	$10.8	20%
Data processing and network services	$31.1	$36.1	16%
Computer professional services	$44.5	$52.2	17.3%
Computer hardware and peripherals	$71	$75.2	5.9%
Computer software	$29	$35	20%

Source: U.S. Department of Commerce — CW Chart: Doreen St. John

Loophole

FROM PAGE 1

at least a decade," said Elliot Klugman, secretary of the dealers' association and vice president of operations at Brookvale (Computer) Associates, Inc.

Even if DEC refuses to rescind the policy, Klugman said, the firm should at least "grandfather in" all of the CPU upgrades already done so users cannot be retroactively charged additional licensing fees.

Policy not adequate

The policy, written years ago when the only upgrade available was from a VAX 11/780 to an 11/785, is now "inadequate" to cover the variety of in-cabinet upgrade options existing since the VAX 6000s started rolling out, DEC officials said.

Mary Welch, a DEC software business marketing manager, said she had no way to tell if any customers had actually paid for a new VMS license after upgrading through a reseller. But she noted that a customer dealing directly with DEC would have to pay $79,000 for an upgrade from a VAX 6210 to a 6310 — with more than $77,000 of that cost earmarked for the VMS and Decnet licenses.

"Obviously, DEC has a right to enforce its ownership and rights in software," said Tom Donovan, an analyst at Technology Investment Strategies Corp. in Framingham, Mass. "But from a practical point of view, it is not a very bright thing to do."

A more reasonable and industry-accepted approach, analysts and dealers said, would be for DEC to charge an upgrade fee that takes the more powerful configuration into account without attempting to crush the secondary market.

> "CRACKING DOWN LIKE this is bad business."
>
> PETER SCHAY
> GARTNER GROUP

"Cracking down like this is bad business," said Peter Schay, an analyst at Gartner Group, Inc. in Stamford, Conn. "What DEC might make in additional software revenues would end up being carved out of the residual value [of the older systems]. It makes DEC less competitive with IBM and other vendors," he added.

Resellers are already shunning low-end VAX 6000s, Klugman said, so the residual value of older systems is plummeting.

"DEC is reacting to a situation they didn't like or didn't understand, and they took this knee-jerk reaction without looking at what it meant," Klugman said. "They really stepped in it."

CORRECTIONS

Jim Wegmann is senior vice president of corporate electronic data processing at Talman Home Federal Savings and Loan, not vice president, as was reported in *Computerworld*'s Dec. 10 issue.

Prime Computer, Inc. will deliver a multinational version of its PI Plus Unix-based database product this month, not in June 1991, as was previously reported in *Computerworld*'s Dec. 10 issue.

In the listing of Comdex products in the Nov. 19 issue of *Computerworld*, the address for Aview Technology, Inc. was incorrect. The correct address is:

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Oracle offsets earlier losses

BY JEAN S. BOZMAN
CW STAFF

REDWOOD CITY, Calif. — Oracle Systems Corp. eked out a small profit for its second fiscal quarter ended Nov. 30, marking a turnabout from Oracle's first-ever loss of $36 million in the firm's first fiscal quarter [CW, Oct. 1].

Oracle generated $268.7 million in quarterly sales, but the net income from this record-setting sales activity was just $6.7 million. In contrast, Oracle earned $19 million on $209 million in sales for the same period last year. Including the first-quarter loss, Oracle's bottom line for the first six months was a $29 million loss, compared with profits of $31 million for the six-month period one year ago.

In a written statement, Oracle Chief Executive Officer and founder Larry Ellison put the best face on his firm's faltering finances. "As we hoped, we returned to profitability in a difficult economic climate during our second quarter," Ellison said. "We held expenses essentially flat with the first quarter, tightened our financial controls and restructured the Oracle USA [sales division]. We expect continued progress in the third quarter."

Profit a must

Profitability is critical to Oracle's continued financing by a syndicate of more than a dozen banks worldwide for up to $250 million. Analysts said that Oracle had recently renegotiated its loan covenants with the syndicate, winning in relaxed conditions but accepting higher interest rates. The terms of the loan covenants will be filed with the Securities and Exchange Commission on Jan. 14, Michael Musson, Oracle's director of investor relations said.

Financial analysts said they saw Oracle's report as positive but not convincing. "It's not a resounding rebound," said Rob Anderson , a senior vice president at Stratagem, a San Francisco market research firm. "You'll need a few more quarters to see whether top management has realized a new way of running their business." Anderson gave Oracle high marks for putting cost controls into place quickly and for greatly improving user support services.

Staying cool

Users did not seem overly troubled by Oracle's financial problems, Tony Ziemba, president of the New York Oracle Users Group said. "In the short term, these financial reports won't make any difference to the user, unless they begin to impact research and development or product support," he said. "The one thing that worries me is that they're still operating in a relatively rough economic climate and having to pull rabbits out of their hat at the end of the quarter to make it profitable."

Several analysts said Oracle's second quarter was highlighted by the closing of several multimillion-dollar transactions. Oracle declined to confirm the identity of these large customers.

Had it not been for such large-scale transactions, Oracle might have faced a second money-losing quarter, some analysts said. "Under Oracle's current set of accounting rules, they can recognize any revenue they believe will be shipped within the next 12 months," said Bruce Lupatkin, a senior technology analyst at Hambrecht & Quist, Inc. in San Francisco. Many other software firms have moved to booking only the revenue that has been shipped, analysts said.

Oracle senior management said that the firm is planning on "flat" revenue growth in the U.S. because of long sales cycles and an economic downturn. However, plans for 25% growth in worldwide sales are still in place for the $971 million company. Oracle will not make any major cutbacks in R&D, even though cost controls are in place, top managers said. Selective hiring has continued, even after an October reorganization terminated more than 400 Oracle staff positions and 100 temporary workers.

Reading the signs

Despite increased revenue compared with the second quarter a year earlier, increased expenses dampened Oracle profits

Second quarter ended Nov. 30
(in thousands)

	1989	1990
Revenue		
Licenses	$146,528	$166,884
Other services	$62,495	$101,846
Total	$209,023	$268,730
Total operating expenses	$177,773	$251,698
Net income	$19,094	$6,727

Source: Oracle Systems Corp. CW Chart: Paul Mock

LAN Manager '91 plans include Mac, Novell links

BY PATRICIA KEEFE
CW STAFF

3Com Corp. and Microsoft Corp. will hold a joint press conference this afternoon, during which the two companies are expected to confirm that 3Com will turn over LAN Manager development and Version 2.0 sales to Microsoft [CW, Dec. 17].

Once 3Com hands over its interest in LAN Manager to co-developer Microsoft, what then? In an interview last week, Mike Murray, general manager of Microsoft's network business unit, declined to comment on today's announcement, but he did outline 1991 LAN Manager enhancement plans.

He said users can expect delivery of the following in 1991: interoperability with Novell, Inc.'s Netware, Apple Computer, Inc. Macintosh connectivity and Transmission Control Protocol/Internet Protocol.

He scoffed at reports that LAN Manager does not operate well in a Microsoft Windows environment. "LAN Manager has excellent Windows support, which we'll be enhancing. I'd like to think that if an organization standardized on Windows, they would see an absolute advantage to standardizing on LAN Manager as well," Murray said.

A new Forrester Research, Inc. report predicted a rebound for LAN Manager in 1991 but cautioned that both it and rival Netware lack needed wide-area telecommunications.

Murray said users can also expect to see some progress here this year in terms of connecting remote local-area networks to each other. The next step, he said, lies in enabling personal computer users on the road to gain full access to all services in the home-office system.

Internal documents said 3Com will provide Microsoft with directory service technology currently under development. Murray noted that Microsoft has repeatedly stated that directory technology is very important. He also said work continues on messaging server technology to include X.400.

> "LAN MANAGER has excellent Windows support, which we'll be enhancing."
>
> MIKE MURRAY
> MICROSOFT CORP.

In 1990, Microsoft added the Domain directory management tools to LAN Manager 2.0. An extension of that technology to the user level will show up in a later release of LAN Manager, Murray said. Most observers expect Version 3.0 to be delivered this year.

Excel

FROM PAGE 1

Office Supplies Division in St. Paul, Minn. "Graphics have become the most central part of spreadsheets today."

Beta-test users of Excel 3.0 said the new program features many presentation tools that allow documents to be cosmetically enhanced. New components include three-dimensional chart capabilities, new drawing tools and a feature that can be employed to place a text box anywhere in the spreadsheet. The program also features word-wrap within cells.

Better tools

The new package will also offer beefed-up functional tools, early users said. Excel 3.0 includes enhanced solver functions, an easier method to program macros that appear to the user to be built-in functions and font support — users now have up to 255 fonts per sheet, compared with four in the previous version. An optional tool bar also simplifies font or drawing tool selection.

The update also supports embedded objects, thus allowing users to place an Excel chart in Powerpoint, a presentation graphics program, and then double-click between the two programs. Additionally, early users said they like the spreadsheet outlining and live-linked consolidation functions, which can collapse spreadsheets to produce summary reports and bring similar information from different worksheets into a summary spreadsheet.

Excel 3.0, however, still faces a strenuous uphill climb in gaining market share. According to research firm Computer Intelligence in La Jolla, Calif., Lotus controlled 65% of the PC spreadsheet market in 1990, while Microsoft came in with only 12%.

Excel choice

However, Excel has also caught a cresting wave of Windows popularity. Analysts said that while Lotus' 1-2-3 was standard in DOS environments, many users switching to Windows typically look for software that takes advantage of the environment. Their most frequent spreadsheet of choice is Excel. Additionally, Microsoft remains less of a one-trick pony than Lotus because of its strengths in the presentation graphics and word processing markets.

"There's been a key change in the spreadsheet world," Rogers added. "With the rush to Windows, Lotus must face the fact that it is no longer the incumbent but is now the challenger."

For some, the enhanced capabilities of Excel 3.0 mean a better ability to create in-house applications. "With the new graphics tools of Excel 3.0, we can now produce EIS applications in-house," said John Stingl, vice president of office automation at Pacific First Bank in Seattle. Stingl said he was impressed with many of the ways Excel 3.0 was able to manipulate and integrate text and graphics.

Firm relocation brings woes

SAN ANTONIO — Datapoint Corp.'s decision to get out of town and head for Paris has cost the struggling originator of Arcnet networking products its fourth president in the last six years.

Michael Michigami, who took the reins in August 1989, resigned because family obligations prevented his relocation to Paris, where the firm recently said it will set up headquarters in the spring.

In accepting the resignation, Chairman Asher B. Edelman credited Michigami with stabilizing the firm's revenue and reducing its debt during his tenure. Nevertheless, Datapoint has continued to lose money, with an $82.8 million fiscal 1990 loss following a $29.2 million dive in fiscal 1989.

Michigami's replacement will be John Harrison, a British citizen who had spent 20 years with the European operations of the former Sperry Corp. Harrison has been working closely with Datapoint since August.

The relocation to Europe, where 80% of Datapoint's revenue reportedly originates, will not affect its status as a U.S. firm. Manufacturing facilities will remain in San Antonio.

Since taking over the firm in 1985, Edelman has been beset with troubles. The firm has suffered heavy restructuring charges and fended off a hostile shareholder takeover attempt.

RICHARD PASTORE

IBM prepares to hit market with 386SX-based laptop

BY MICHAEL FITZGERALD
and RICHARD PASTORE
CW STAFF

Sources briefed by IBM have confirmed that the company's long-expected foray into the laptop computer market will happen by the end of next month.

The sources said the new notebook system will be based on Intel Corp.'s 80386SX chip and will be announced on Feb. 26. Other sources indicated the release date will be earlier — Jan. 29.

The Micro Channel Architecture (MCA)-based machine will weigh 7½ pounds and run at 20 MHz. It will be available in configurations with 30M-, 40M- or 60M-byte hard drives and will offer 2M bytes of random-access memory, expandable to 18M bytes. With a Video Graphics Array-compatible screen and a built-in 2,400 bit/ sec. modem, it will cost under $5,000 in the 60M-byte configuration.

> "I THINK IBM has been incredibly lax in its pursuit of the portable market. What they're doing is coming in two years late with 'me-too' technology."
>
> TIM BAJARIN
> CREATIVE STRATEGIES

The SX is also expected to have a "¾" version of the MCA bus architecture that will simply be shorter than the desktop version.

Three strikes, you're out

This is IBM's third swing at the portable market, after three luggables — the discontinued PC Convertible, the PS/70 and PS/75 — failed to sell well. Users and analysts are tentatively saying that this time IBM will get a hit, based on the product specifications. But some questioned IBM's strategy in the portable field.

"I think IBM has been incredibly lax in its pursuit of the portable market. What they're doing is coming in two years late with 'me-too' technology," said Tim Bajarin, executive vice president at Creative Strategies Research International, Inc. "If the task was to establish a foothold in the market, then they'll do it. If it's establishing a leadership position, they have a very long way to go."

Another skeptic is Bruce Stephen, an analyst at International Data Corp. in Framingham, Mass. However, Stephen said if the product is solid, IBM will get space in retail stores.

"There's not going to be shelf space for everyone, and IBM is extremely well positioned from a distribution standpoint, so they'll get an automatic place in the market, provided it's a good product," Stephen said. He added that buyers will be more forgiving of IBM's history in portables.

Jacqueline Bynsdorp, personal computer coordinator at Jockey International, Inc. in Kenosha, Wis., is one who is inclined to be forgiving, provided the machine meets the expected configuration.

"It would be of interest because we are looking at a new venture for our sales force," Bynsdorp said.

Other users are excited about it, period.

"Needless to say, we're salivating for it. The lighter weight with the high-capacity disk drives has a great deal of appeal to us," said Claude Rankin, manager of MIS at Deloitte & Touche's New York office.

The machine's specifications essentially match those of Compaq Computer Corp.'s LTE 386/20s, but both RAM expandibility and hard-drive capacity appear to meet or exceed the specifications on every other sub-10-pound portable announced to date. Its price is also expected to undercut Compaq's by $1,000 to $1,500, and this may attract some potential Compaq buyers.

"That's a very good price — it certainly piques my interest," said Paul Nelis, microcomputer specialist at Caisse Nationale de Credit Agricole USA, a Compaq LTE 286 user. "I've looked at the Compaq 386; it's really expensive."

A slow start

While SX notebooks began to hit the market at the end of October when Compaq introduced its LTE 386s, Compaq is among only a handful of vendors to actually ship the product. Some analysts said a February ship date, while not early, would probably still put IBM in a solid position in the SX notebook market.

"The race is for the mind share: Who will be there first, who will people think about with these machines?" said Dan Ness Jr., an industry analyst at Computer Intelligence in La Jolla, Calif.

"People complain that IBM delivers products later than it should, but I think in this case it has more to do with IBM's desire, stated to its dealers, that it must have critical levels of inventory before it releases a product into the market," said Dave Korus, hardware analyst at Kidder, Peabody & Co. in New York.

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NEWS SHORTS

Phone outage hits New York

Damage to an AT&T fiber optic cable in Newark, N.J., caused major problems in New York last Friday. AT&T, which detected the problem at 9:30 a.m., was able to handle just 40% of its normal call volume into and out of the city. While long distance traffic in the rest of the country was unaffected, the loss of the 100,000-plus circuits in the cable also affected international calls. The outage interrupted Federal Aviation Administration voice and radar data communications, prompting Newark International Airport to close. It also caused traffic problems at LaGuardia and Kennedy airports and at Boston's Logan Airport. Trading was suspended on New York's commodities and mercantile exchanges. The American Stock Exchange reported minor problems. An AT&T spokesman said the company's operators had been instructed to provide the access code numbers to competing long distance companies to customers who request them.

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Western Union closes deals

Western Union Corp. completed two related transactions last week by selling most of its Business Services unit to AT&T for $180 million in cash and using the net proceeds to buy $335 million of the principal amount of its outstanding high-yield notes in a cash-tender offer of 50 cents on the dollar. In the AT&T transaction, Western Union sold the assets used to provide its Easylink electronic mail service and its packet and telex services. The sale also included the transfer of Business Services' employees and customer base to AT&T, the company said. It did not include Western Union's Priority Services, which includes Mailgram, Priority Letter and Custom Letter service offerings.

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Pyramid plans high availability

Software to allow Pyramid Technology Corp.'s Unix-based computers to perform on a "high-availability," but not fault-tolerant, basis will be introduced by the company this week. Mountain View, Calif.-based Pyramid makes high-end, reduced instruction set computing machines aimed at the commercial market.

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Aid for Eastern Bloc schools

Boston-based International Data Group (IDG) has announced the creation of the East-West Education Development Foundation, an organization designed to aid Eastern Bloc schools in gaining access to computer technology. The foundation is looking for corporate donations of older machines that are being replaced or personal computers now in excess inventory. Manufacturers can also use the donation program to introduce Eastern European students to their products. IDG is the parent company of *Computerworld*, more than 100 other publications that circulate throughout the world and the International Data Corp. market research firm.

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IBM wins IRS pact

IBM last week won a systems integration project contract that could be worth $340 million over seven years. Under the contract IBM, GC Services of Houston and Andersen Consulting will work with the Internal Revenue Service to link all areas of the IRS tax collection function. If the IRS exercises all of its options, as many as 21 host systems, 5,000 desktop systems and 10,000 portable computers may be installed.

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DEC plans Ultrix moves

Digital Equipment Corp. will unveil new capabilities this week for Ultrix, its own flavor of the Unix operating system. The new features, according to industry analysts, should give both DEC and IBM users additional tools for computer aided software engineering. Industry analysts said that DEC may be ready to fill in a few blanks on its Portable Common Tools Environment, a system software environment similar to Hewlett-Packard Co.'s Softbench, which would enable message passing between different tools and applications across multivendor platforms.

Cooper fills Seagram's CIO post

BY CLINTON WILDER
CW STAFF

NEW YORK — The information systems profession had barely rung in 1991 when the year's first high-level IS executive to change jobs settled into his new chair. Jack M. Cooper, former president of CSX Technology, became vice president and chief information officer at beverage giant The Seagram Company Ltd. on Jan. 1.

Ron Bell/Picture Group

Cooper *settles into Seagram's after leaving CSX position*

Cooper, who relocated to the New York office of Montreal-based Seagram, had been a high-profile fixture at CSX for 10 years. But the lure of a new challenge in a new industry was too great to pass up, he said last week.

"I did a lot of productive and exciting things in IS [at CSX], but the potential for introducing and developing information technology is greater here," he said.

Cooper resigned from CSX Technology, the IS unit of Richmond, Va.-based transportation firm CSX Corp., on Dec. 21. Ronald W. Drucker, senior vice president and CIO of CSX Corp., will take over Cooper's day-to-day duties running CSX Technology until a replacement is found. Drucker is also chairman of CSX Technology, which is based in Jacksonville, Fla.

The CIO position is a new one at Seagram, and Cooper will also be one of seven members of the firm's executive committee. He reports to Seagram President and Chief Operating Officer Edgar Bronfman Jr. The elevation of IS in the Seagram executive hierarchy was a big draw, Cooper said.

"I will play an integral part in developing company strategy, which I think is essential for the development of a successful information technology strategy today," he said.

Cooper is one of many IS executives who have recently changed industries as well as companies. However, he noted that he also switched industries to join CSX 10 years ago from The Williams Cos., an oil industry concern. Before that, Cooper worked in the academic IS world as vice president of computer services at the University of South Carolina.

Cooper said his first two goals at Seagram are developing an interlocked IS and business strategy and developing the technology infrastructure to support it.

Singleton returns to old job as permanent head of SPAC

BY CLINTON WILDER
CW STAFF

LOS ANGELES — A major corporate shakeup at its parent bank has resulted in the leadership of Security Pacific Automation Corp. echoing the old maxim: The more things change, the more they stay the same.

Security Pacific Vice Chairman John Singleton has returned as permanent head of the bank's IS unit, the position for which he hired former Baxter International, Inc. information systems chief Michael Heschel last spring. Heschel resigned in a surprise move in November, after which the bank announced that Singleton would run the firm on an interim basis until Heschel's replacement could be found.

Last month, however, Security Pacific announced new duties for virtually all of its senior executives, including Singleton. He no longer has responsibility for some non-IS staff support groups that formerly reported to him, including human resources and legal and public affairs. He retains responsibility for corporate central services and the title of vice chairman.

Mark Harmel

SPAC's Singleton *takes on new duties*

A Security Pacific spokeswoman said the changes were not related to job performance but were part of a larger realignment of executive responsibilities stemming from major strategic changes, notably disbanding the merchant bank unit. The moves will reduce the work force by 4,000 and result in a fourth-quarter charge of $200 million, contributing to a fourth-quarter loss of approximately $350 million. But the fifth largest bank in the U.S. expects to be profitable for the year.

"Integration of our technology systems is a critically important element in our continued success," Security Pacific President and Chief Executive Officer Robert H. Smith wrote in an internal memo. Singleton "will focus his attention entirely on his role as head of Security Pacific's automation company to coordinate these activities."

Singleton could not be reached for comment.

AT&T stirs revolt against NCR's board

BY MICHAEL FITZGERALD
CW STAFF

DAYTON, Ohio — AT&T opened the new year by making sure its acquaintance was not forgotten by NCR Corp., setting in motion a two-pronged assault designed to provoke a shareholder rebellion against NCR's board of directors and management.

While AT&T's $90-per-share, all-cash tender offer does not expire until Jan. 15, the company has made other tactical moves:

• On Dec. 31, it mailed a second proxy to shareholders seeking a special meeting of NCR's stockholders to remove a majority of NCR's current board and replaceit with a slate proposed by AT&T. NCR would have to call a special meeting if AT&T receives votes representing 25% of NCR's stock, although NCR would have discretion to set the time within a "reasonable" period.

• On Jan. 3, AT&T filed a lawsuit in Federal District Court in Dayton asking the court to invalidate NCR's takeover defenses and charging NCR with violating securities laws for failing to disclose how it arrived at $125 per share as a fair price for the company.

Barry Bosak, who follows NCR for Smith, Barney, Harris Upham & Co. in New York, said NCR would be trading in the mid-50s without AT&T's bid, and other analysts priced the stock lower.

None of AT&T's tactics were unexpected, and only the lawsuit drew response from NCR, which issued a one-paragraph statement calling the suit "frivolous and baseless."

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Concurrent down, but up

Firm hopeful about turning debts around, regaining profits

BY NELL MARGOLIS
CW STAFF

TINTON FALLS, N.J. — Concurrent Computer Corp. was abruptly derailed from its comeback trail late last week when major bondholders threw the struggling computer vendor into involuntary Chapter 11 bankruptcy proceedings.

Nevertheless, officials at Concurrent, which has been in technical default on some $177 million of debt since September 1990, remained upbeat.

In view of a recent surge of orders, a slew of new software partners and a recapitalization blueprint that has proven to be persuasive at the bank [CW, Dec. 10], Chief Executive Officer Denis Brown said, "We are confident that Concurrent can return to profitability following a successful debt restructuring." The firm has 20 days from the petition's filing in which to convince the bankruptcy court that its services will not be needed.

Meanwhile, users who have stuck by the embattled firm this far have taken a wait-and-see stance.

"Concurrent has a fine product line and has been a very good supplier to us," said Robert Breakstone, executive vice president at international lottery software player Gtech Corp. in West Greenwich, R.I. "If things work out for them — and we hope they do — we will continue to contract with them."

"I'm taking this philosophically," said Jim Wieter, information systems director at Concurrent user site Loral Defense Systems, Inc. in Akron, Ohio.

Concern for users

His firm's main concern at this point, Wieter said, is whether the Chapter 11 proceedings will affect Loral's maintenance agreement with Concurrent.

NASDAQ could prove less tolerant, a Concurrent spokesman conceded. The Chapter 11 proceedings could jeopardize the exhange's recent decision to continue trading the firm's stock despite Concurrent's technical failure to fulfill its financial requirements.

Ironically, last week's setback may have been triggered by Concurrent's successful renegotiation of its bank debt. Three institutions holding some $53 million of aggregate bond debt sought the bankruptcy court's protection within days of an accord that reduced and redrew the firm's even heftier IOU to its bankers.

According to Concurrent, the bondholders acted to hedge against being nosed out of their position in the creditors' line by the banks.

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Benchmark executable file size	**104,713 bytes (2.6 times smaller)**	282,288 bytes	282,288 bytes
Benchmark source available for review***	**YES**	NO	NO
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Intergraph absorbs Dazix

BY J. A. SAVAGE
CW STAFF

Intergraph Corp. completed its purchase of Dazix, formerly Daisy Systems Corp. and Cadnetix Corp., promising to port its computer-aided engineering software to the Sun Microsystems, Inc. Scalable Processor Architecture (Sparc) platform that Dazix had been using for its software. Intergraph will also continue to support Dazix's proprietary hardware.

The deal was finalized by a San Jose, Calif., federal bankruptcy court on Dec. 24 for $10 million in cash and $4 million in Intergraph stock. Dazix had been in Chapter 11 proceedings since May after a string of deficit years, which culminated in a 1989 loss of $140 million.

Keeping the home base

Intergraph did not acquire all of Dazix's distribution offices in Europe and the Pacific Rim but kept the firm's headquarters in Boulder, Colo., and its development office in Sunnyvale, Calif.

"It will be run as a separate company," said Rob Glasier, vice president of marketing at Intergraph in Huntsville, Ala. He said that while the company will first port Intergraph software to the Sparc platform, long-term plans are to offer both the Intergraph reduced instruction set computing (RISC) platform and the Sparc platform to software customers.

Although the emphasis on future products will be on RISC-based workstations, Glasier promised that the Dazix installed base of proprietary workstations using Intel Corp. CPUs will be supported. "To maintain loyalty and customer base, you have to support the systems," he said.

The odds of Dazix's survival as a separate entity are questionable, according to analysts such as Bob Herwick at Hambrecht & Quist, Inc. in San Francisco. "Once an organization has been as devastated as Dazix, I honestly have to wonder about rebuilding," he said.

Herwick added that Intergraph has to make a large investment in the sales force and then keep users narrowly focused on Dazix software offerings. He noted that there are similar and more integrated (with Sparc hardware) electronic design packages from companies such as Mentor Graphics Corp. in Beaverton, Ore., that present serious competition.

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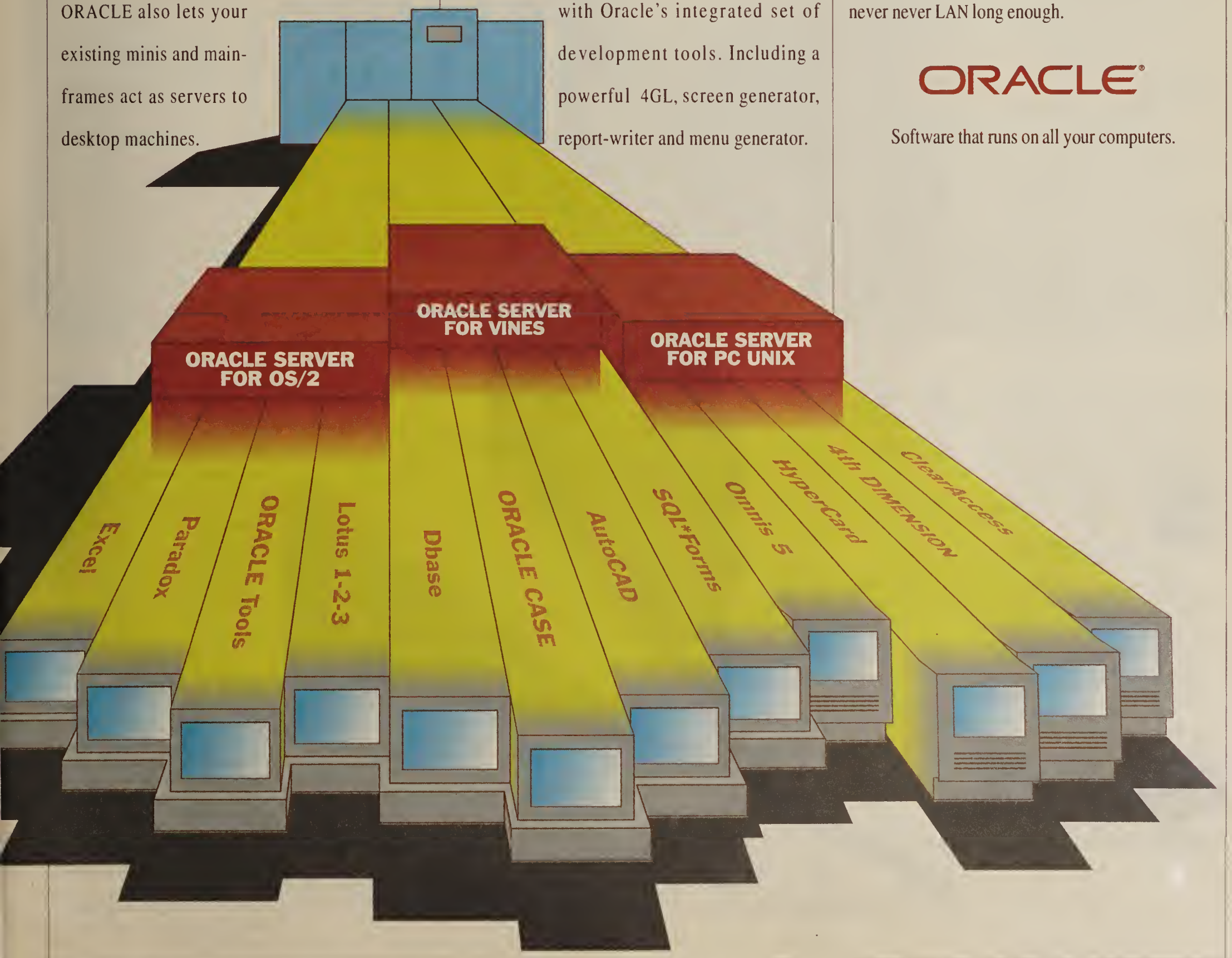

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New outsourcing deals for IBM

BY CLINTON WILDER
CW STAFF

IBM's outsourcing business was quiet through most of last year after a rousing 1989, but the sleeping giant has awakened for 1991.

IBM has forged separate agreements in principle to take over data center operations of two major banks for up to 10 years. One of them, Southeast Banking Corp. in Miami, is among the nation's 50 largest banks, with $13.4 billion in assets. It will be IBM's largest outsourcing customer in banking.

The other, The Riggs National Bank in Washington, D.C., is the largest bank in the capital, with assets of $7.25 billion.

Both contracts will be long-term agreements in which IBM will hire a majority of the bank's data center employees and run day-to-day systems operations. They are IBM's first major outsourcing deals since 1989, when it announced service pacts with three southern banks — Hibernia Corp., First Tennessee National Corp. and Bank South Corp. — and its blockbuster deal with Eastman Kodak Co.

IBM formed the Systems Services Division late last year to focus more specifically on outsourcing. Banking industry observers said they expect many banks to sign up with IBM this year in a hotly competitive market that includes Electronic Data Systems Corp. (EDS) and Systematics, Inc.

IBM "has done its on-the-job training," said M. Arthur Gillis, president of Computer-based Solutions, Inc., a New Orleans banking information systems consultancy. "When they first started, the real salesmen were the bankers coming to them, and they were novices. Now, they're acting more like the vendor, and they will be giving EDS and Systematics a rough time," Gillis said. Southeast and Riggs said they considered other vendors.

BANKING INDUSTRY observers said they expect many banks to sign up with IBM this year in a hotly competitive outsourcing market.

At Southeast, IBM will develop and implement an automation system for the bank's 230 branches within one year. In-house development would take three years and cost more, said Kenneth Sheridan, executive vice president for systems and operations at Southeast.

Southeast expects to save 20% in IS costs over the 10 years of the contract, including $6 million in the first year, Sheridan said. He did not disclose Southeast's current IS budget. IBM will hire most of the 90 employees in the bank's IBM mainframe data center in Miami. The vendor will also take over some telecommunications functions, but Southeast will retain new software development.

Southeast lost $165 million during the first nine months of 1990, but "even without that, the rationale for outsourcing would still exist," Sheridan said.

The agreement is expected to be finalized later this month.

At Riggs, most of the 75 data center, telecommunications and technical support employees will be hired by IBM. Riggs will outsource the operations of its Washington, D.C., data center, which includes an IBM 3090 Model 400J and a System/88 transaction processor. The firms did not announce the specific length of the contract but said it was for more than five years.

A Riggs IS executive called the outsourcing "a beneficial way for us to stay on the top end of the technology curve. We can focus on business needs and not worry about when to buy the next processor."

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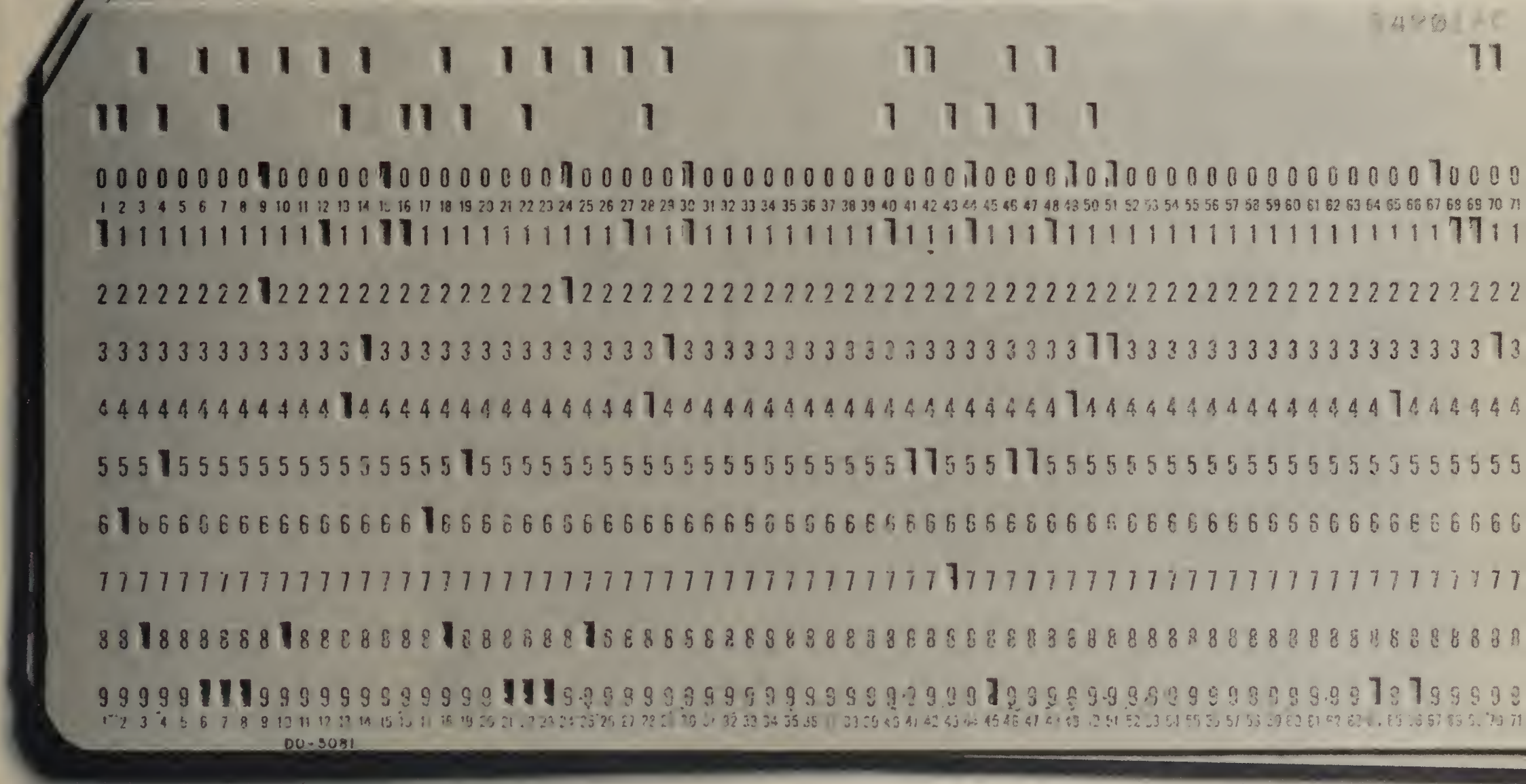

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R.I. bank closings could cost IS employees jobs

BY JOHANNA AMBROSIO
CW STAFF

PROVIDENCE, R.I. — Last week's closing of 45 credit unions and banks has left the fate of scores of information systems professionals throughout the state uncertain. Some IS staff members may need to find new jobs.

Rhode Island's new governor, Bruce G. Sundlun, ordered the institutions to close a few hours after taking his oath of office on Jan. 1. He made the move, a statement by his office claimed, because a private insurance firm closed, leaving the institutions and depositors uninsured.

The 35 credit unions and 10 banks are to remain closed until they can arrange for other insurance, such as that provided by the Federal Deposit Insurance Corp. As of Friday, seven of the 45 had done so and were scheduled to reopen today. Another 15 are likely to complete their arrangements and reopen this week.

What will happen to the other 23 institutions is anyone's guess. For now, many of their IS operations are still functioning, although they are not handling normal transaction loads because no business is being conducted. Customers cannot withdraw from or deposit into their accounts until the institutions reopen.

"Our computers are still running. We can get into the system and check on balances and other customer information," said Doreen Danko, a systems coordinator at Marquette Credit Union in Woonsocket, R.I., one of the largest institutions affected. "Everything in our computer room is the same as it was, except all the information is frozen."

It is possible, however, that the shutdowns might not be calamitous from an IS perspective. Typically, only the largest institutions — those with assets of $50 million or more — have in-house IS staff personnel, said Loren Meeder, senior vice president at the Credit Union National Association, Inc. in Madison, Wis. If that holds true in this case, only about a dozen of the institutions have IS departments, and the rest use service bureaus to meet their data processing needs.

Also, the credit union business as a whole is growing nationally, Meeder said. So those IS staff members who do find themselves out of work could probably find jobs in other states.

Nor will the IS departments have to deal with too much confusion once business resumes, Meeder predicted. "They might have a backlog of checks and credit-card postings, but if all the books were balanced before this happened, it won't be too bad a start-up. It may require some overtime, but it's better than with other types of disasters."

CDC's chip plant sold to Cypress

BY MAURA J. HARRINGTON
CW STAFF

BLOOMINGTON, Minn. — One man's trash is another man's treasure, as the old saying goes, and Control Data Corp.'s sale to Cypress Semiconductor Corp. of the VTC Class-1 semiconductor wafer fabrication facility here is no exception.

The sale of the 170,000 sq-ft VTC facility brings CDC's ownership of semiconductor manufacturing plants to a close — a positive move for the computer and information services company that sold the plant as part of a restructuring plan started in 1989.

For Cypress, a $225 million company located in San Jose, Calif., the purchase could mean a significant increase in its production of static random-access memory (SRAM) chips.

Cypress has struggled to keep up production of its chips during the past year, and another facility could help it meet the demand for its SRAM and various MOS chips, according to Erik Jansen, a semiconductor analyst at Robertson Stephens & Co., an investment research firm in San Francisco.

Cheaper than building

Cypress purchased the plant — as well as an estimated $32 million worth of factory equipment — for a price of $14.7 million, which is to be paid in stages over the course of the next two years, according to a Cypress spokesman.

The facility itself, he added, has an estimated value of $26.5 million. To build such a plant from the ground up would cost as much as $60 million, according to Cypress.

Jansen said the purchase was a "wise" move, even though it was slightly premature — about 1½ years ahead of the company's expansion plans.

With a 1.2% share of the MOS memory market, Cypress is not considered to be a large semiconductor manufacturer compared with its competitors, which include NEC Corp., Intel Corp. and Motorola, Inc., according to Jerry Banks, director of the Semiconductor Group at Dataquest, Inc., a San Jose market research firm.

However, Cypress is cash stable and growing in the MOS market, an area in which other companies are having trouble making profits.

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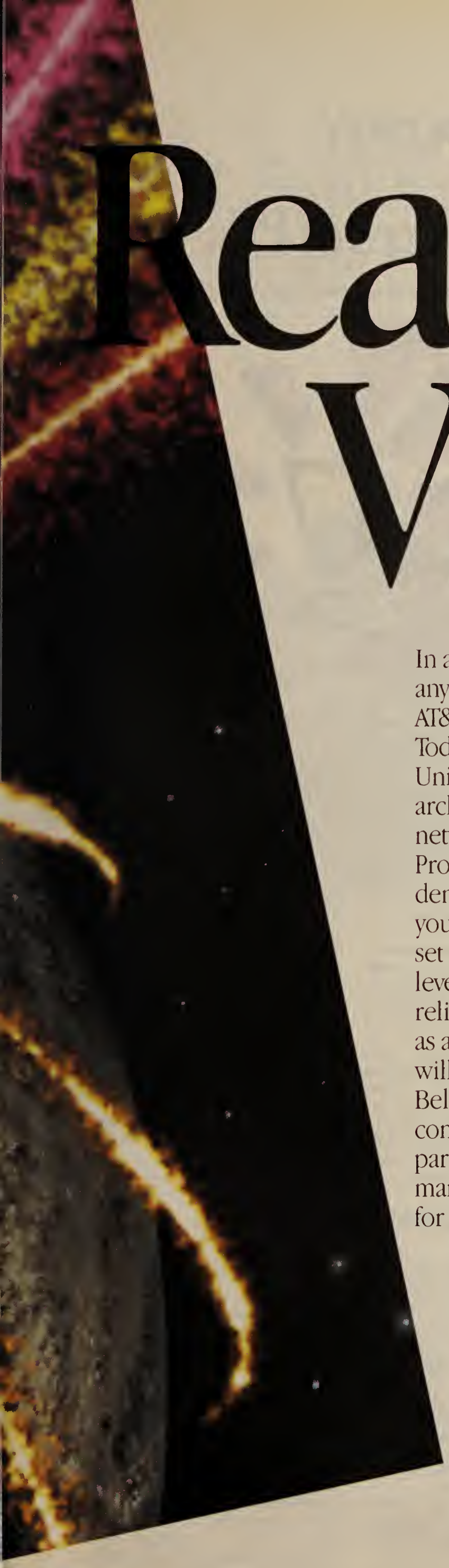

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TECH TALK

Superlearning

■ The University of Illinois Center for Supercomputing Research and Development has installed an Alliant Computer Systems Corp. FX/2800 supercomputer as part of a new academic program aimed at making supercomputers easier to use and more effective for scientists and engineers. The program will begin this fall at the University of Illinois and five other universities nationwide. The goal of the program will be to bring students from several disciplines together to learn how to apply supercomputers to their sciences. The supercomputing center will get a better understanding of the needs of each science and can be used to build better software and architectures, officials said.

Eye on the sky

■ Scientists at the University of Chicago, Princeton University and the Institute for Advanced Study are working on a "Digital Survey of the Sky." The project will map an area 100 times as large as previous surveys. The scientists plan to build a wide-angle telescope in the Sacramento Mountains in New Mexico to take in large expanses of sky at once. The telescope will be connected to digital cameras and computers and will log data about celestial objects. Digital data will make it possible to process the information rapidly, the scientists said.

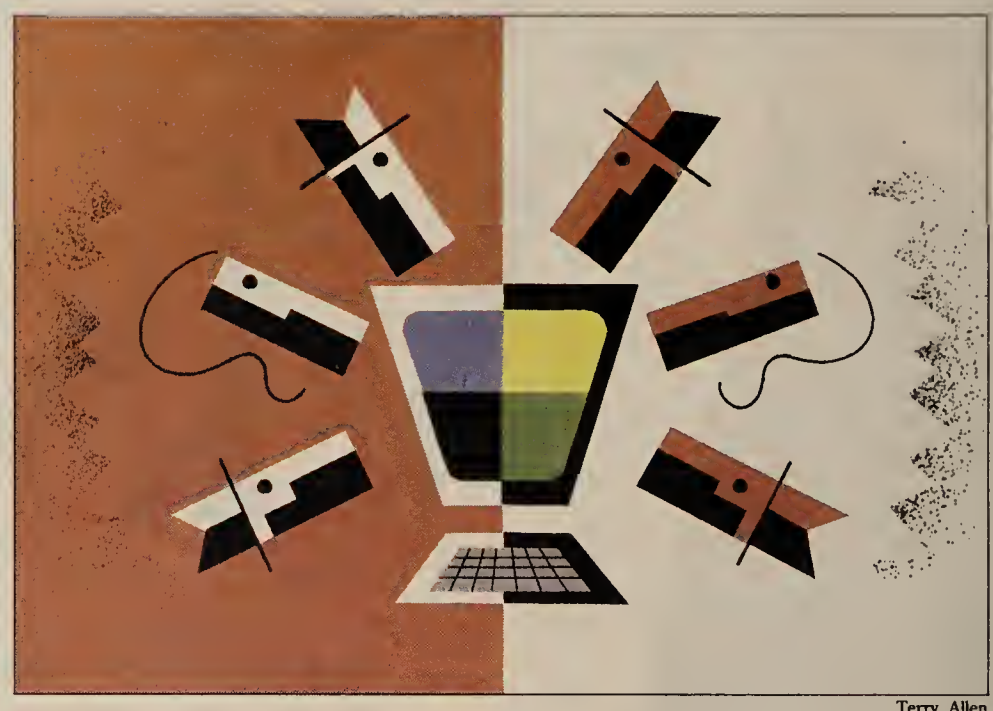
Canned computer cells

■ Sintar Software in Seattle, Wash., has introduced a "cellular automata" program called Cellmaster. Cellular automata, the firm said, are artificial universes where paramecium-like creatures, jellyfish and other eerie species are born, reproduce and die. The user sets the rules that govern how cells compete, cooperate or even prey on each other. A spokesman for Sintar said the program is a "construction set for building cellular automata models" that can be educational and entertaining. Cellmaster costs $45.

The changing faces of PCs

Personal computers of the year 2000 will be multifaceted information appliances

BY MICHAEL ALEXANDER
CW STAFF



Terry Allen

What is in store for the personal computer in the year 2000? According to some visionaries, the PC will by then have become an "information appliance," a multifaceted machine that will be portable, pervasive and more personal than any of today's PCs could ever hope to be.

At the current rate of advancement in microprocessors, memory chips and other electronic devices, tomorrow's information appliance will have the power of a minicomputer, yet it will be as simple as a toaster to operate, according to Samuel Bleecker, a Boca Raton, Fla., technology consultant who advises corporations on emerging technologies.

Tomorrow's microprocessor chips will have up to 100 million transistors, compared with about 1 million today. The fastest of these chips will run at nearly eight times the speed of today's Intel Corp. I486, Bleecker said. Sixty-four megabit dynamic random-access chips, able to store the complete works of Shakespeare (1.6 million words), will be readily available, and 256M-byte chips will be around the corner.

With that much horsepower, the information appliance will be a ubiquitous device that will be so useful, you will want to carry it all of the time, Bleecker said. "It will be essentially a utility fielder that will be good for everything, including serving as a gateway to a host of information services," Bleecker said.

The traditional QWERTY keyboard will be replaced by a stylus for handwritten input and speech recognition technology for voice command.

The device will also double as a telephone, allowing users to communicate with anyone, no matter where they are. "People's addresses will no longer be street addresses but portable addresses like telephone numbers," Bleecker predicted.

Users will also use their appliances to access a wide range of information and entertainment services that will be delivered via fiber-optic cables, telephones and eventually satellites, Bleecker said. "As the cost of networking and transmission goes down, the PC will never be a stand-alone item again," he added.

Empruve, Inc., a small Knoxville, Tenn., start-up, is preparing to formally introduce in March a "multimedia appliance" that offers a glimpse of the portable PC that will be in use by the end of the decade.

The device, which has been named Cornucopia, was designed especially for multimedia applications. Cornucopia has a 10-in. LCD for text and graphics that is taller than it is wide, a 4-in. color LCD for video and still images and a narrow strip of illuminated icons that operate like function keys.

Cornucopia's designers opted for what they call a Tadpole — a hybrid of a joystick and a mouse — instead of a conventional keyboard. Cornucopia also has built-in stereo speakers, a compact disc/read-only memory drive, a 20M-byte hard disk drive, an Intel 80386-based microprocessor and 2M bytes of RAM.

The entire setup, which is packed into a "cabinet" and "console," weighs about 15 pounds. "I would like to see the console and cabinet together so you could pick it up and use it like a book and not be burdened by weight," said Sean Kitzmiller, a designer at Empruve.

Kitzmiller said he thinks an electronic book weighing only five or six pounds and having capabilities equal to the Cornucopia could be on the market before the end of the decade.

The company intends to sell the unit as an OEM for between $3,900 and $4,900.

Coming soon to a video store near you . . .

BY MICHAEL ALEXANDER
CW STAFF

You have to wonder what people did for entertainment before there were videotape rental stores. Now if they would just make it easier to find a worthwhile video instead of having to search the shelves.

Auteur, Inc., a start-up company in Philadelphia, said it has found the answer in a personal computer built around Intel Corp.'s Digital Video Interactive (DVI) technology.

The firm is putting the finishing touches on a "video for video" system for videotape rental stores that it said will be in operation in some of the nation's largest franchises this year.

Clips of films are stored on compact disc/read-only memory (CD-ROM) discs and retrieved using DVI compression and expansion algorithms. The technology makes it possible to store up to four hours of full-motion video on a single CD-ROM in a quarter-screen mode.

"Instead of going in the store for 10 minutes to half an hour and looking at boxes of tapes, you will be able to preview in half a minute any movie ever made," said Dom DiJoseph, vice president at Auteur.

Videotape renters will be able to sort films in the database in a variety of ways, including Academy Award winners, directors, genre and so forth.

The next step could be a completely self-service video rental operation that would permit customers to view clips and select videos without ever leaving their cars. The store would operate like a drive-in bank, DiJoseph said.

The company envisions that the kiosks will be installed in clothing stores and automobile showrooms, among other types of retail outlets, as well as in "remote malls" set up in airports, college dormitories and other high-traffic venues. Once in place, the kiosks could be networked so that consumers could shop for goods and place orders electronically. Eventually, the kiosks could be linked in what DiJoseph called a "flexmedia" nationwide network. "Flexmedia is anything you see or hear that you can access and control to learn, to be entertained or to find out information," DiJoseph said.

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HEWLETT
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EDITORIAL

License to earn

EVER WONDER HOW a software package or license gets its price?

Clearly, the price is not based on the tangible value of the disks, tapes or package itself, no matter how thick the accompanying documentation. Nor does the price reflect the true costs of the vendor's software development and maintenance. It is nearly impossible to gauge those costs as they apply to the life of a product whose life span is unknown.

So more often than not, the price is based on the WTMWB rule, or "what the market will bear," unlike a piece of hardware, whose price equals the cost of production plus a markup based on the uniqueness of the product.

These days, the WTMWB rule for software is being put to some new tests. Over the last few months, vendors of software for small and big platforms have begun positioning themselves vis-a-vis the conditions of their software license agreements. While this doesn't necessarily affect the price per package, it certainly can impact the costs of ownership to the customer, and that's all that really matters to the user anyway.

In one case, some outsourcing vendors raised a stink at what they claimed was an aggressive posture of Computer Associates in its efforts to exact fees from outsourcing vendors when software licenses are transferred to them [CW, Sept. 24, 1990].

More recently, Lotus began talking with other personal computer software vendors about ways of stopping the proliferation of "shadow copies" of software — multiple copies made by a license holder for different machines [CW, Dec. 17].

As our article on the subject showed, the license agreements from the different major PC vendors are an obfuscating morass that, when applied to a large site with thousands of users, becomes almost unenforceable for practical purposes.

There's nothing nefarious or underhanded in these efforts to define pricing. It's just good old-fashioned business in a recessionary climate of slowing sales in which vendor competition is getting nastier.

Rest assured that this competition almost always works in favor of the customer. The hardball tactics of some vendors will be seen (and are being seen) by others as a chance to woo customers with liberal licensing rules or aggressive unit price competition.

The vendors own the license. They can do whatever they choose with that license within the very broad confines of copyright and antitrust law. And the management of those companies has a fiduciary responsibility to make as much money as possible for the shareholders.

You, the customer, own the ultimate rights — the decision of whether to buy a package and the choice to buy whatever package you want. If you object to a vendor's licensing agreement, call the office of the chairman and let your thoughts be known. Buyers vote with their dollars, and those votes will be more scarce in the next 12 months than they have been in years.

LETTERS TO THE EDITOR

C++: The debate

I had imagined that the days must be gone when you would publish an ill-informed debate on matters such as Cobol PERFORM. Jim Murray's letter [CW, Nov. 12] on C++ shows that I was wrong. If he thinks that overloaded functions are a bad idea, does he also think the overloaded operators that exist in almost all high-level languages, as well as in at least one machine code, are a bad idea? For that matter, what about the effective overloading provided by languages that automatically convert arguments to the data types given in the function definition?

Call-by-reference is a bad idea? Apparently he wants to see copying of large arguments and more global data, or conversely, maybe he wants functions to be unable to affect the caller's environment at all.

The usual criticism of C++ is that object-oriented programming is hype. Murray wisely avoids this line of argument because, as he admits, he does not know much about the subject.

Bill Magaletta
Los Angeles

Infinite AD/Cycle

I eagerly grabbed the Nov. 26 edition of *Computerworld* and turned to Mr. Holcman's In Depth article, "Preparing for AD/Cycle." At last, I thought, all would be revealed to me so that I could sit down and calmly prepare myself for the coming of AD/Cycle.

However, the article turned out to be an "off the peg" discussion of change in an organization. Indeed, when I globally substituted "any new thing" for "AD/Cycle," the article read just as coherently.

I rather like the words of Mr. Holcman's own "software guru and visionary," Ed Yourdon, on the subject of AD/Cycle: "It was as if we had all suddenly blundered upon Stonehenge, left behind by some exotic race of aliens who pledged to return one day and tell us what it really meant."

When will one of the peddlers of AD/Cycle tell us what it's all about? Or will we have to wait for another book by Eric von Danniken before we all become "enabled?"

Meilir Page-Jones
President
Wayland Systems, Inc.
Seattle

Mail storm

Congratulations to Marty Gruhn for taking a stand on the further erosion of our privacy [CW, Dec. 17].

It has gone far enough.

My solution to increased mail caused by "market blending" will be to write:

"Addressee moved.
Forward to:
Lotus Development Corp.
Cambridge Pkwy.
Cambridge, Mass. 02142"

Kenneth A. Kleinman
CDP Associate
K'Allan Associates
Stamford, Conn.

Open challenge

In the article "Not-so-open open systems" [CW, Dec. 3], Ms. Ambrosio implies that the meaning of an "open system" is one in which each type of application behaves in a similar manner to any other application of the same class.

Unfortunately, this has nothing whatever to do with what most of us are talking about when we speak of open systems. The question is not whether a large Fortran program can be transparently converted to work in a Cobol environment, but whether it can quickly be moved among highly dissimilar hardware — for example, from a Sun to a Cray.

It is precisely the ability to quickly migrate systems from one platform to another that characterizes Unix's open systems promise. And while this openness has plenty of room to be improved yet, already it is so much easier to port programs among highly dissimilar hardware (despite differing versions of the Unix operating system) that some companies are betting their corporate strategies on it.

So the issue of openness is not whether you can convert from a network database management system to a relational model but whether you can expect to move your application as it exists from one machine to another and have a decent chance of finding the same vendors represented on your new machine.

Remon Lapid
President
The Software Foundry, Inc.
New York

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Speak your mind — but clearly

RANDALL K. FIELDS

Communications is governed by two very critical rules: Do not speak in a way that makes the person listening feel stupid or uninformed, and do not make the listener feel like an outsider.

It's important to remember that the listener is already strategically disadvantaged because his role in the interaction is passive. Engaging his interest will lead to an endorsement of the ideas presented and a mandate for action.

On the other hand, allowing the listener to become alienated from the material under discussion — and nothing does it more quickly than making him feel stupid — could be a fatal blow to the project.

This is pretty basic material; we all covered it in Communications 101. And, just as obviously, the last person you would want to make feel stupid or like an outsider is your boss. Unfortunately, this is exactly what occurs all too frequently in the IS world.

Note the jargon in the previous sentence. It slipped out naturally, and I trust I can leave it where it is, given the assumed audience for this publication.

Eric Orner

But what's acceptable among peer groups will not pass in other situations. Every profession now has its own jargon: Finance has IRRs, DCFs and hurdle rates. Operators have turnover, churn, QSC and others. Generally, however, professional buzzwords are sprinkled throughout business conversation, generally in some context that allows the uninitiated to follow the speaker's train of thought.

What's different in the information systems world is that we are almost devoid of vocabulary that is not jargon. Even the jargon has subsets, specific to areas within the field, so that managers in the industry are beginning to have trouble understanding the language of their subordinates. As a result, language is failing in its essential function — to communicate.

Where will this end? Will our fluid use of everyday language atrophy? By using techspeak, are we closing ranks against other professions and associations that could be our allies?

When we meet with chief executive officers or other senior managers, we are dealing with a group that is used to constantly being told how smart, effective and visionary they are. Such encounters can be intimidating, and the typical IS method is to deal with intimidation in the presence of authority and business expertise by shrouding the conversation in jargon.

Seeking to impress top managers with our own knowledge and expertise, we use technobabble, which they most likely will not understand. Subconsciously, we mean to imbue our presentation with a similar level of authority and expertise. However, it fails abysmally.

All we do is make the decision maker feel stupid and get ourselves relegated to performing for other, less well-placed audiences. Is it any wonder that company chairmen often prefer to have us report to some intermediary division, such as administration or finance, rather than directly to them?

Turning off

Once we have lost the decision maker's ears, we have dug ourselves into a second-class citizen hole. We have not used our language in a genuine information exchange, so we have been turned off.

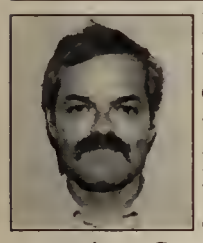
Given the current economic climate and the difficult times predicted ahead, budgets will be diminishing while expectations are rising. Technology will be called on to deliver on its promise of increased productivity and efficiency.

There may never be a more opportune moment to cost-justify our products. The stage is being set for our industry to move into the spotlight. With senior management in the audience, we would be well-served by leaving our techspeak in the wings. Let them be impressed with our performance, results and solutions rather than the complexity of our speech.

Fields is chairman of Fields Software Group in Park City, Utah.

Czechs are speeding technology's bloom

JEFF ANGUS



Even in icy winter, when the earth crunches underfoot, people in Prague talk about flowers. During a recent trip to Czechoslovakia, a native of that city took a friend and me for a walk in a frozen park and pointed out where the various flowers bloom when they're in season. To me, the attention she gave to these still-hidden flowers was symbolic of how the country is approaching technology and its future.

The Czechs are trying to remake their society in double-time, and after scanning the world and researching the options, they are buying into computing technology with energy and determination.

Entrepreneurial drive

Some small shoots are already breaking through the cold earth: As early as the beginning of 1990, entrepreneurs had started setting up small dealerships in their homes. (Storefronts are hard to come by.)

Walter, a very young businessman, assembles and sells a range of Taiwanese personal computers using Intel 80286 and 80386 chips. His showroom is your office. He brings the systems in, assembles them and lets you play with them until you're satisfied. This process is time-consuming, yet the prices are very competitive with Taiwanese clones. Walter offers high service at low margins because he has an entrepreneurial bug, a fire in his belly for doing business.

The customers I saw Walter interact with were two staff members of Brontosaurus, an environmental education group that was allowed to have members only after the revolution. Both of these staff members were surprisingly advanced in their understanding of computer equipment and networks and what kinds of practical work you can get out of them.

I believe they are more clever about computers than their counterparts in the U.S. activist community because they have a "comparative advantage" that I think will have a telling effect on technology development in Eastern Europe.

A comparative advantage is when a group, through being held back or defeated, gains an advantage of time or experience. German industry, which was levelled during World War II, provides one good example of how comparative advantage can work.

By 1950, a significant piece of German industry was less than four years old, while much British production technology, which had been successfully protected by that country's air defense, dated from 1930. Although forced to start from the ground up, the Germans actually gained a running start because they had the opportunity to research the problems other nations had with newer technology and avoid many of them.

> NO ONE VIEWED the computer as an enemy; no one seemed unwilling to learn and use the technology.

Czech technology implementers now have the same kind of advantage. Because it has been proven elsewhere that microcomputers have been effective in the workplace, they have fewer fights with centralized processing-focused managers than in the free market world.

In addition, because they are entering the market late, their baseline technology is more advanced 286-based systems, which now cost less than 8088s did in 1985. Much of the program design that makes applications more productive for users, from multitasking environments to graphics, are more practical to run on the high-end systems, so users are more productive, more quickly, than their First World peers were.

The Czechs also enjoy two cultural advantages. The first is what I call the "sex factor." There is no "sizzle" involved with office technology there. Brand name means little; the appropriate use for specific products is the crux. I can't imagine a breathless conversation between two propeller-heads in a Czech company cafeteria over the brand names on their computers or software. People there don't seem to attach any eroticism to their office appliances — a chronic, productivity-crippling malady here.

And, maybe as a result of the lack of eroticism attached to office equipment, I didn't meet any technophobes in Czechoslovakia. No one viewed the computer as an enemy; no one seemed unwilling to learn and use the technology. Everyone I spoke with viewed the technology as a useful tool.

It's possible that the country's recent industrial history has also played a part in the widespread acceptance of technology. Many U.S. employees' phobias about computing result from job replacement fear. But in Czechoslovakia, the old system was oriented to a full employment program, at least in principle. And really high unemployment, the kind free-market societies can have, hasn't hit yet.

The other cultural factor is the "humanist factor." Vaclav Havel, the president of Czechoslovakia, strongly believes the revolution's work has to do with people's individuality and souls at least as much as it does with economics. People don't seem to believe their individuality is meant to be subsumed to either state-owned or profit-making schemes.

So people implementing technology are viewing it for what it can do practically. The Czechs are applying the 80/20 rule as well as anyone I've seen. They don't try to do everything at once, but implement, in most cases, the highest payback technologies first, adding new applications only when needed. No one is trying to network systems that don't really need it. They may not be resource-rich, but from the installations I saw, they were getting their full 80% and on a low budget.

Angus is a manager at Farallon Computing, Inc., a maker of Apple Computer, Inc. Macintosh networking hardware and software in Berkeley, Calif.

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COMMENTARY

Rosemary Hamilton

IBM's bigger problem

IBM ended 1990 on a real sour note with Officevision as it found itself in the very uncomfortable position of announcing a second delay on this strategic office platform.

The company attempted to handle the bad news with style. It trotted out not only Tony Mondello, who as vice president of office systems development is directly responsible for Officevision, but also Joseph Guglielmi, Mondello's boss and head of the Applications Solutions Division, to explain what happened.

The two talked tough, readily admitting that IBM messed up and would do whatever it takes to make sure no customer suffers from the delay.

But here's the thing I still do not understand: IBM executives listed a few reasons for the delay, including that they made a mistake in estimating just how big a project Officevision was. Well, how come? They said this happened because it was new territory. Nothing quite like the Officevision project had been done at IBM before.

Maybe I'm holding IBM to a higher standard here, because that answer would be accept-

Continued on page 31

AS/400s are not going alone

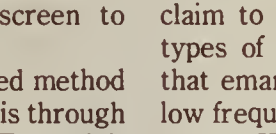
Purchases of multiple systems increase as user interest grows

BY MARYFRAN JOHNSON
CW STAFF

One of IBM's most welcome surprises in 1990 was the boom in multiunit sales of the smallest Application System/400s, which are finding homes as the main processors for remote company branches or as nodes in large distributed networks.

At places such as KOA Kampgrounds of America in Billings, Mont., and ABC Home Health Services, Inc. in Brunswick, Ga., the entry-level AS/400s have moved in where computers were neither welcome nor affordable in the past.

Much of the publicity surrounding the AS/400 Models C4 and C6 at their debut last August centered on whether the machines could lure thousands of System/36 users onto the new platform. While IBM officials remain cautiously optimistic about that eventual migration, what they really enjoy talking about these days is the sheer volume of sales of the small AS/400s.



"Multiples are contributing more and more to our business," said Robert LaBant, IBM vice president and general manager of Application Business Systems. He estimated that at least 30% of his largest accounts are buying in multiples — anywhere from a few dozen machines to hundreds, and in some cases, thousands.

Networking improvements in OS/400 Release 3 are also encouraging more customers to attach greater numbers of personal computers to the AS/400 and to use the machine as a server, LaBant said.

Great Western Consumer Finance Group in Memphis, plans to put AS/400 Model C4s in 300 of its 460 offices during the next few years, rather than the larger Model B10s that were originally chosen.

"What we really liked about the C4s was not just that they were smaller, cheaper and faster," said Peter Colin, vice president of application systems at Great Western. "We also liked the new release of the operating system, which is particularly helpful to us in the way we use our distributed network."

One of the networking improvements in Release 3 — a facility called direct node support — gives Great Western a faster turnaround time on nightly dial-up communications between the AS/400s and the IBM 3090 mainframe at corporate headquarters. "When you're dialing up 300 offices, and you cut that time from eight minutes to six minutes, you're saving a lot of money," Colin noted.

A healthy change

At ABC Home Health, the largest privately held provider of home health care and nursing services, the new AS/400 models are displacing a network of System/36s in a $2.7 million to $3.5 million conversion project. Users are still working in the System/36 emulation mode but are being retrained at headquarters in Brunswick, Ga.

"We had been using the 36s

Continued on page 30

Low-emission VDTs begin to hit U.S. market

BY J. A. SAVAGE
CW STAFF

In January of last year, the only low-emission VDTs on the market could be found in Northern Europe. By December, however, nearly a dozen companies had, or had promised, VDTs with lower levels of electromagnetic radiation available in the U.S.

With concern rising over the potential health dangers from VDT emissions, vendors have seized the marketing opportunity. Most use an electromagnetic field to cancel out the one from the monitor, but others use shielding, screening or, in one case, glowing balls set at diagonal corners of the screen to achieve the same goal.

The most often used method of lowering emissions is through "cancellation coils." The original electromagnetic fields are produced from a coil at the yoke of the CRT inside a VDT. Another coil is added to generate a near-equal magnetic field to cancel out the first. This method is used by IBM, Idea Courier, Inc. in Phoenix; Megagraphics, Inc. in Camarillo, Calif.; Sigma Designs, Inc. in Fremont, Calif.; Sun Microsystems, Inc.; and Qume Corp. in Milpitas, Calif., among others.

Low in two fields

All of the low-emission monitors claim to be low in one of two types of electromagnetic fields that emanate from VDTs: Very low frequency fields range from 15,000 Hz to 16,000 Hz. A second type of field, called extra low frequency, is emitted between 3 Hz and 3,000 Hz. Some companies, such as Sigma, are attempting to cancel out extra low frequency fields with cross-canceling coils.

"Then there are issues of distortion," said Gulab Sharma, manager of CRT displays at Sun. Sharma said the canceling fields have to be aligned just right, or the pictures will wave or deform.

In addition to cancellation coils, most vendors incorporate other technology in low-emission terminals, but they are quiet about it because there are patents pending on the technologies.

Dave Corbin, an engineering manager at Qume, said that in

Continued on page 31

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Maintenance productivity gains of up to 10-to-1.

In this same study, developers were asked to compare IEF maintenance productivity with their former methods. Of those responding, *more than 80 percent had experienced gains of from 2-to-1 to 10-to-1.* (See chart.)

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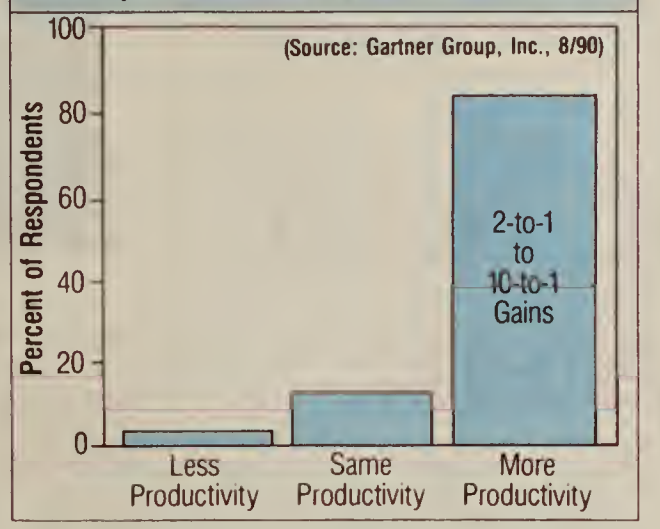
IEF Maintenance Productivity Compared to Traditional Techniques.



Developers were asked to compare IEF maintenance to former methods. Of those responding, more than 80% reported productivity gains of from 2-to-1 to 10-to-1.

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Unix: The lifeblood of health network

ON SITE

BY ELLIS BOOKER
CW STAFF

WEST LAKE VILLAGE, Calif. — A Unix processor now beats at the heart of Well-Net, an information network for the health care industry that links insurance companies, doctors and medical institutions nationwide.

Two weeks ago, Wellmark, Inc. announced it would spend $30 million over five years with AT&T Computer Systems to revamp its Healthcare Information Network, including the replacement of its IBM 3083 mainframe with a System 7000 Model 7080, AT&T's top-of-the-line reduced instruction set computing Unix server.

Wellmark joins a growing number of firms moving transaction-intensive applications off traditional mainframes and onto large-scale Unix servers. Last year, Hyatt Corp. in Chicago made a comparable choice for its nationwide reservation system, exchanging an IBM 4381 mainframe for a group of AT&T System 7000s.

"My next step would have been a 3090 series," Wellmark's Chief Executive Officer Steve Muzzo said, adding that he bought the AT&T system for under $1 million — less than the annual operating system maintenance charge for an IBM 3090. "Actually, we do more with AT&T than the 7000," Muzzo added. "We've joined with them to provide a telecomputing solution to the health care industry."

In fact, practically every Well-Net component now has AT&T's handprint on it. In addition to the System 7000, Wellmark exchanged its dedicated-line, IBM Systems Network Architecture network with AT&T's Accunet X.25 packet network.

Muzzo also replaced the IBM 3270-type dumb terminals with which users had previously accessed the service with nearly 200 AT&T 6386 Workgroup System computers and AT&T Paradyne modems. "We reduced our networking costs by 80% by going to packet switching," Muzzo said, adding that the Intel Corp. 80386-class workstations are capable of much more local processing than the 3270 terminals "and so communications between the users and the network are few and far between." Unlike dedicated lines, Accunet is billed based on time on-line and number of packets transmitted.

As if changing a processor and a network were not enough, Wellmark also changed states, relocating its data center from Reno, Nev., to its current home in West Lake Village, midway between Los Angeles and Santa Barbara, Calif.

AT&T was contracted to port the IBM mainframe applications to the System 7000 Unix environment.

CEO Muzzo *saw Unix cut costs*

Electronic services such as Well-Net and others are needed to handle the paper glut in the health care business, Muzzo said. "Twenty billion to 25 billion pieces of paper are sent around the health care industry each year," he said, adding that few health care providers (hospitals, health maintenance organizations and doctors' offices) and insurance companies or third-party insurance administrators currently have electronic links.

The service gets around the predominantly proprietary world of hospital information systems by creating an interface that translates data into a common format. The service also includes a scanning device for capturing and transmitting images. When hospitals adopt the emerging Health-Level 7 (HL-7) open systems protocol for exchanging documents and files between institutions with dissimilar data formats, Well-Net will be there, too: Its system is already HL-7-compliant.

What may make Well-Net unique, however, is its ability to transmit various types of documents — electronic claims, clinical information and electronic mail. Muzzo also said he believes his network is the first of its category to send optical images between subscribers.

Begun in April 1989, Wellmark is a wholly owned subsidiary of Primark Corp. in McLean, Va. The packet data version of the network went on-line last September, and Muzzo expects to have between 80 and 100 customers on Well-Net by the end of this month.

Escon an aid to remote disks

BY JEAN S. BOZMAN
CW STAFF

SAN JOSE, Calif. — Managers at IBM's Storage Systems Products Division said they believe the company's Escon fiber-optic channel technology will end up making remote disk drives the equals of those still tethered to central-site mainframes.

The result could be that users will be able to automatically "mirror" their on-line databases at sites as much as 5.6 miles away rather than creating database duplicates at a central site and having to haul backup tape cartridges off-site each night.

They also could opt to keep their primary disk drives at those remote sites.

"Managing data not only in the 'glass house,' but across the enterprise requires a total systems solution," said Ray Cosyn, manager of the division's marketing center. "Customers' requirements are changing," he said. "They tell us they cannot afford to have systems down for any time at all." At a recent technology briefing, Cosyn said that such customers include banks and airlines, which have strategic on-line systems that must run 24 hours a day, seven days a week.

But preventive maintenance, installation of new software releases and power outages continue to cause downtime at data centers. Software problems cause an estimated 85% of such central-site outages, IBM said. One solution, Cosyn said, would be to use the Enterprise System/9000 mainframe's Escon cables to "distribute" the corporate database to alternate data centers. That way, downtime at the central site would not destroy data or even interrupt other processing.

"One of the promises of this new fiber technology is that it will allow customers to place their [disk drives] in a remote site," Cosyn said. The remote disk drives could be hooked and unhooked from central processors without interrupting the central mainframe operations. That would prevent "planned" central-site interruptions caused by reconfiguring disk-drive strings under the IBM 3090 systems architecture.

Once Escon "directors," or switching centers, are in place, users can also carry out nonsynchronized updates to remote databases, Cosyn said. That way, they can refresh the remote copy of the central database within a specified interval of minutes or hours. "People are tired of trucking tape cartridges away from the central site each day," he said.

New flexibility

Database management will also be affected by new Escon hardware, said Bob McIvor, senior planner for marketing strategy at IBM's Santa Teresa Lab, just a few miles from the Storage Systems Division. "Now the user will have some flexibility in the physical placement of the data," McIvor said. "Some people would like to update their database twice, making a mirror image of the database. Escon is giving you greater flexibility in deciding where those two copies of the database will be located."

Until now, high costs have prevented the installation of duplicate data centers for all but a few user sites. However, a handful of firms, including Citicorp in New York, have begun such on-line "electronic vaulting" of valuable corporate data, analysts said. Vaulting is costly because high-speed T3 transmission lines are often used to link data sites.

In recent months, users at several large IBM mainframe sites have said they are planning to use the Escon cable and Escon director switches, announced Sept. 5, 1990, to duplicate and protect some portions of central-site processing. Many have begun installing Escon technology, but users at some large sites say they must also build an infrastructure of fiber-optic networks before moving disk-drive strings off-site.

"The new brand of wide-band networking is offering us an alternative in terms of disaster-recovery backup," said Steve Howard, manager of business continuance planning at Covia Corp., United Airlines' information systems subsidiary. "Putting different functional processors and different databases in multiple locations, with high-speed channels in between, would reduce the risk of an interruption in our business." However, Howard gave no target date for the installation of off-site databases at Covia. Right now, Covia's primary processors are located in two adjoining buildings in Denver.

American Airlines is also evaluating the dual data center option — while stopping short of committing to such a plan. "It may be possible to mirror part of your database with the new fiber-optics [technology]," said Roy Smythe, managing director of Sabre engineering in Tulsa, Okla. "That would give you some automatic protection, and I think that's something you could look forward to." American Airlines is installing a 45M bit/sec. fiber-optic backbone network, scheduled for completion by 1993.

Some technical barriers still remain to "mirroring" of the central-site database. IBM's IMS database already allows automatic updates of remote sites, McIvor said. But while IBM plans to extend that ability to DB2 in the near future, it has set no date for the feature's availability. Until then, DB2 users must intervene manually in the update process if they wish to make a duplicate copy, McIvor said.

DEC to discount VMS upgrade

BY MARYFRAN JOHNSON
CW STAFF

MAYNARD, Mass. — Digital Equipment Corp. Microvax users can kick off 1991 with savings of as much as 77% on the cost of standard VAX/VMS unlimited user licenses under an upgrade policy DEC announced recently.

Those eligible for the upgrade are the approximately 60,000 Microvax II and Microvax 3000 series customers with time-sharing licenses of VMS 4.0 and later versions. The deadline for the upgrade discount is June 28, 1991.

Companies expecting to increase their number of users per Microvax will be the major beneficiaries of the upgrade, DEC officials said.

"Those companies can get unlimited user access to VMS at a fraction of the usual cost," said Rick Spitz, group manager of VMS engineering at DEC. "Depending upon the customers' model and current license, the total savings could surpass $17,000."

Microvax grows up

Since the introduction of the Microvax II in 1985, DEC has installed more than 127,000 Microvax systems in the U.S., according to market researchers at Computer Intelligence in La Jolla, Calif.

"The VAX's little brother has grown up," observed Dave Eulitt, an analyst at Computer Intelligence. "The Microvax series has now surpassed the VAX series in total U.S. system processing power, as measured in MIPS." CI research shows that 60% of new Microvax sales end up running new applications or adding computing capacity to existing systems.

The most recent introduction to the line was the VAX 4000, which Eulitt noted is effectively a Microvax with the "micro" dropped from its name. The VAX 4000 uses the same Q-bus backplane as previous models, but DEC has singled it out as the first system designed with client/server computing in mind.

AS/400s

CONTINUED FROM PAGE 25

very happily, but we realized that in order for my professional staff to be truly productive, we had to take advantage of current technology," MIS Director Don O'Connor said.

Eventually, 100 of ABC Home Health's branch offices will have Model C4s installed, giving each site more efficient access to scheduling of nurses and therapists. Automating paperwork between each branch office and headquarters is another benefit, O'Connor said.

Market research firms have no installed base numbers yet for the new entry-level models, and IBM is not releasing sales figures. However, among other low-end models of the AS/400 — the B10 and 20, and the C10, 20 and 25 — growth in the installed base has been brisk. Computer Intelligence in La Jolla, Calif., reported that sales of the low-end AS/400s grew 57% between January and July 1990, while sales of the high-end AS/400s grew by 12% and the midrange models by only 5%.

A practical application

For KOA Kampgrounds, the appeal of the smallest AS/400s was their ability to smooth out the registration and reservations process at some of KOA's 630 campsites in the U.S. and Canada.

"On the larger campgrounds, managing the site inventory is a real problem," said Bryan Meyers, director of information services at KOA, which already owned a dozen AS/400s when the new entry-level models were introduced. "You can end up with double-booking problems, like 50 people showing up for 40 sites."

During the next few years, KOA will put in 60 to 70 of the AS/400 Model C4s, he added. "Our idea is to have one at every campground," Meyers said, "but we only own 15 of the campgrounds, and the rest are franchised, so a lot of our plan is a salesmanship job to our franchisees."

Because many of the campsite managers are leery of computers, the new ease-of-use features in OS/400 Release 3 — such as the Operational Assistant facility — were also welcome.

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NEW DEALS

DEC, Inland join forces

Digital Equipment Corp. and Chicago-based **Inland Steel Co.** have announced a multimillion-dollar project to begin processing the steel company's business applications on DEC VAX 6000 minicomputers. DEC will act as a systems integrator in developing the database, integrating software and managing subcontractors. The project is scheduled for completion in September 1991.

The resulting "I/N Kote Business Level 3" system will provide operations management, planning automation and order processing functions. The system will also exchange information between Inland's corporate systems at the Indiana Harbor Works and I/N Kote in New Carlisle, Ind., a joint venture between Inland Steel Co. and **Nippon Steel Corp.** in Japan.

Damark International, a Minneapolis-based catalog mail-order company for consumer electronics, recently replaced a fault-tolerant system from **Stratus Computer, Inc.** with a Unix-based Series 300 computer from **Sequoia Systems, Inc.** in Marlboro, Mass.

With 370 users at Damark's national headquarters in Minneapolis, a Sequoia system running the Pick System, Inc. operating system will handle on-line order entry, billing and other business functions and be connected to IBM mainframes at a service bureau for credit-card verifications. Sequoia won the sale in a competitive series of benchmarks, Damark officials said.

Digital Analysis Corp., an open systems integrator, has been awarded a $10 million contract from **Unicor Federal Prison Industries, Inc.** to supply AT&T Unix System V computer systems based on the **Data General Corp.** Aviion workstation architecture.

The contract calls for the installation, maintenance and support of the DG Aviion systems in as many as 54 factory sites located at federal prisons across the U.S.

Federal Prisons Industries is a wholly owned government corporation that provides employment and training for inmates in federal correctional institutions.

Wang Laboratories, Inc. recently signed an agreement making it the official computer supplier for Great American and Festival Island, a major sports and entertainment complex currently under construction in Memphis.

The contract includes orders for midrange systems, cabling, point-of-sale devices, voice-mail systems and security and time-card processors.

FDA screening effects of VDTs, TVs

BY MITCH BETTS
CW STAFF

Because of growing public concern, the U.S. Food and Drug Administration (FDA) is planning to embark on the first comprehensive study of electromagnetic radiation from VDTs since 1981.

The study, to be conducted at the FDA's field laboratory in Winchester, Mass., will measure both very low frequency (VLF) and extremely low frequency (ELF) emissions from more than 100 models of VDTs and television sets.

William Boivin, a physicist at the FDA lab, said his proposal for renewed VDT testing was prompted by "the general level of interest in the technical and popular press." He said the 18-month study will get under way in a month or two, after a robust methodology is approved by FDA officials. The FDA lab already tests VDTs for compliance with the federal standard on X-rays, so Boivin's plan is to measure these same units for VLF, ELF and ultrasound emissions.

Maureen Butler, an engineer at the FDA's Office of Compliance in Rockville, Md., said she hopes the study will include low-radiation VDTs and retrofit screens, to see if vendors' advertising claims for them are justified.

Low-emission

CONTINUED FROM PAGE 25

some monitors, there is the option of a low electrostatic tube. "Every tube builds up a small electrostatic charge," he said. "This drains it off continuously so you don't get shocked."

Getting in on the act

Other companies are attacking the problem with screens.

Santa Monica, Calif.-based Norad Corp., for instance, uses a wire mesh screen with a separate grounded wire to drain static.

The company claimed the screen "attenuates" electromagnetic fields coming from the front of the VDT. Those fields, however, also radiate from the back and sides of the monitor.

A more unusual method that is used to reduce the fields is offered by Wellware Corp. in Park City, Utah. Its product, which is called A/NOX, consists of two small bulbs that are placed in the upper left and lower right corners of a VDT frame.

The bulbs, which are filled with undisclosed elements, resonate and vibrate when the VDT is turned on.

According to the company, the fields resulting from the bulbs match those of the VDT but are half a cycle out of phase, thus canceling each other out.

According to Wellware, the company is still testing the product.

Hamilton

CONTINUED FROM PAGE 25

able if it were coming from a small start-up software firm. But IBM? Surely the company is savvy enough to know when it doesn't fully understand something. And surely that would mean that announcing aggressive delivery dates, as it did in 1989, would not be the smartest of moves. The executives more or less agreed with that point and said that in the future, they will not make such blue sky announcements.

Looking to this year doesn't exactly brighten the Officevision picture, either. We expect an update sometime in the second quarter, and at that point, IBM may have a new delivery schedule.

But unless the general mood in the market changes between now and then, that event should be a letdown. Based on interviews with customers and industry analysts, one has to wonder if many users will be jumping for joy by the time the full-blown Officevision rolls out.

It seems that since the initial hoopla when Officevision was announced in 1989, user enthusiasm has been on the decline. By some future date, when all the features of Release 2 do arrive, how can we expect much interest at all?

Oh, don't get me wrong. There are some very satisfied Officevision users. *Computerworld* has talked to some. Typically, they are running it on a host as a step up from earlier IBM office products. But there are also many would-be Officevision customers who see no burning reason to move to that platform.

Really, the bad news for IBM was not the delay or the fact that executives had to publicly acknowledge they goofed. The bad news was that few people were really ticked off. If there had been more anger, sure, that would have been difficult for IBM, but at least it would have shown that people really want the product. But it's that indifference that is going to plague IBM in the future.

NEW PRODUCTS — HARDWARE

Processors

Harris Corp.'s Computer Systems Division has introduced a multiprocessing real-time system designed to perform time-critical applications such as flight simulations, seismic data and signal processing.

The Night Hawk 4800 is based on 25-MHz Motorola, Inc. 88100 reduced instruction set computing technology. It supports three of Harris' compatible operating systems for use in software development and interrupt-driven production applications, the vendor said.

The system has been available since October. Pricing starts at $58,500.

Harris
Computer Systems Division
2101 W. Cypress Creek Road
Fort Lauderdale, Fla. 33309
(305) 977-5502

I/O devices

Intecolor Corp. has introduced a 20-in., color X Windows-based terminal designed for industrial environments.

The IX3000 includes a 20-in. display that features 1,024- by 768-pixel resolution, two microprocessors, an Intel Corp. 80386SX processor and a Texas Instruments, Inc. TI34010 graphics processor. Up to 8M bytes of random-access memory and a logic platform equipped with two IBM Personal Computer AT-compatible bus slots are also featured.

Pricing starts at $5,500.

Intecolor
2150 Boggs Road
Duluth, Ga. 30136
(404) 623-9145

Data storage

EMC Corp. has announced its Orion series of solid-state disk subsystems for Unisys Corp. 1100 and 2200 mainframes.

The series consists of two models: Orion and Orion/VL. The Orion subsystem contains two control units with a maximum capacity ranging from 16M to 1.8G bytes of memory. The Orion/VL contains two to eight control units and features a subsystem capacity of up to 4.8G bytes.

A 16M-byte Orion configuration costs $34,000, and a 32M-byte Orion sells for $51,400. A 256M-byte Orion/VL version is priced at $224,000, and a 1G-byte Orion/VL costs $552,000.

EMC
171 South St.
Hopkinton, Mass. 01748
(508) 435-1000

American International Devices, Inc. has announced the AI/3109, a plug-compatible 32M-byte board that uses 4M-byte chips designed for IBM's Application System/400 Model B70.

Features include an off-line switch for disconnecting without having to remove the board, LED indicators to monitor activity on a system and a transferrable lifetime warranty.

The product's list price is $25,000.

American International Devices
12540 Beatrice St.
Los Angeles, Calif. 90066
(213) 305-8161

General Business Technology, Inc. has announced two digital audio tape (DAT) drives designed for IBM Application System/400 environments.

The GBT 4604 can be used with AS/400 Models B10 through B20 and C10 through C25. The GBT 4606 DAT drive runs on the IBM AS/400 9406 models. Both helical scan drives store 2.5G bytes of data on a single 4mm DAT cartridge and transfer data at 1G byte/ hour.

The GBT 4604 is priced at $9,995 and $13,450 with a data compression feature. The GBT 4606 costs $10,950 and $13,950 with data compression.

General Business Technology
1891 McGaw Ave.
Irvine, Calif. 92714
(714) 261-1891

Power supplies

The Superior Electric Co. has announced the Stabiline series of uninterruptible power supplies, featuring full-load operating times ranging from 10 to 30 minutes and half-load times of 25 to 60 minutes.

The series consists of cord, plug and hardware models with the following ratings: 400, 800 and 1,250 VA; 120 V; and 60Hz. Pricing ranges from $1,250 to $2,795, depending on type of model.

Superior Electric
383 Middle St.
Bristol, Conn. 06010
(203) 582-9561

Emergency Power Engineering Technologies, Inc. has announced the EPS 2000 11-kVA, the latest model in its EPS 2000 family of uninterruptible power supplies.

The EPS 2000 11-kVA is a three-phase device designed to be used with midrange computer systems, the vendor said.

The product costs $24,000.

EPE Technologies
1660 Scenic Ave.
Costa Mesa, Calif. 92626
(714) 557-1636

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AT&T SYSTIMAX™ PDS LAN Cable
AT&T 100 ohm high-performance data cable allows high bit-rate signaling up to 500 feet. It supports simultaneous transmission of muliple systems' high-speed data signals and is compatible with AT&T's 110 Connector Systems.

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As quick-connect terminating systems for cross connections and termination of cable conductors, AT&T's 110 Connector Systems may be configured to any building terminal layout. One-piece design reduces space and hardware needs, yet is rugged enough to stand up in a high-activity terminal environment.

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Just look at SPARCstation 2GX. It delivers ultra-high speed at no extra cost. So it's ideal for electronic publishing. Financial analysis. And for electrical and mechanical designers who work with 2-D and 3-D wireframe drawings.

And that's just the most basic color model. We've also built SPARCstation 2GS. It lets mechanical designers and scientists create 3-D solid images in

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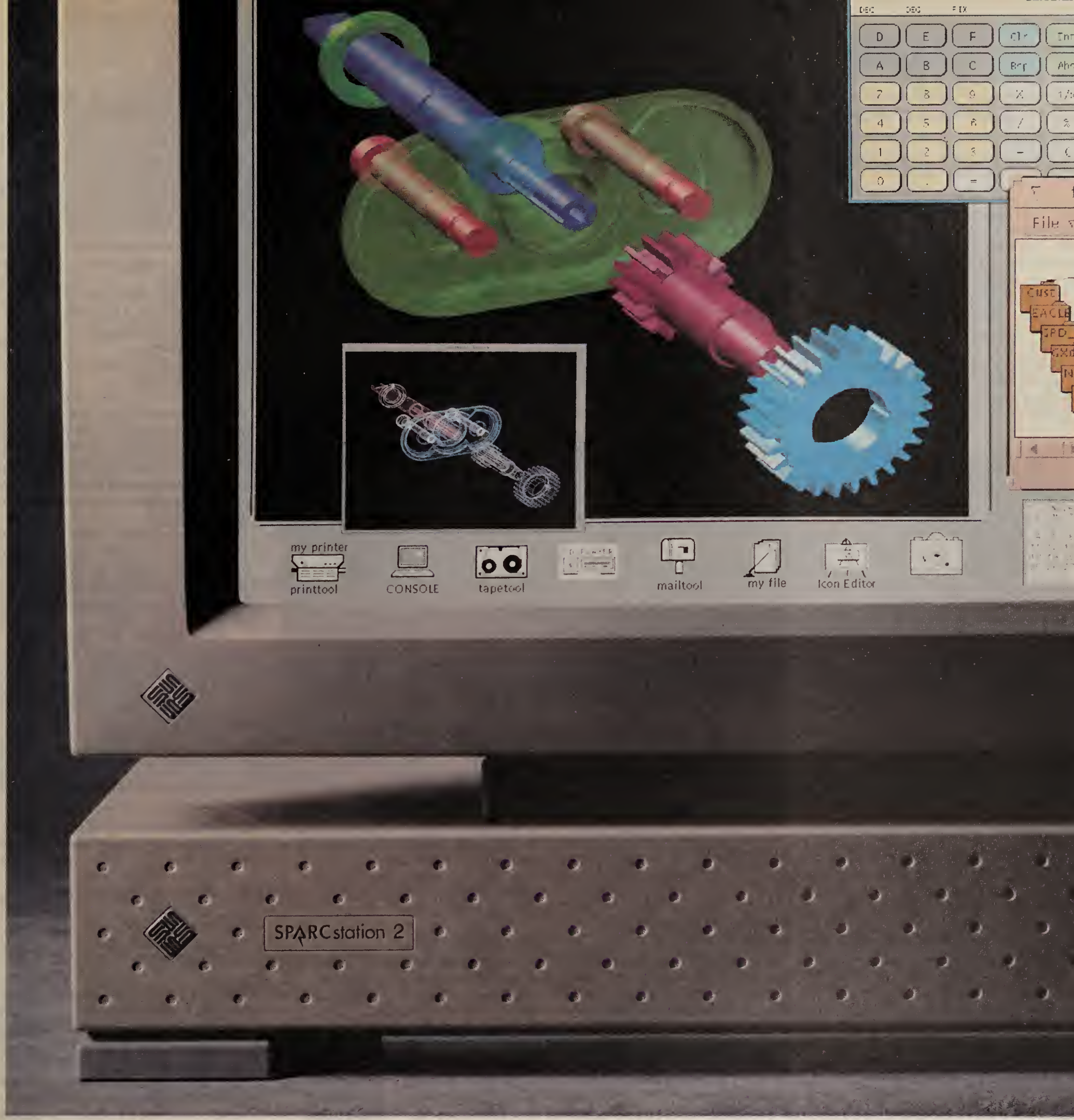

24-bit true color. It's the kind of tool people absolutely hate to share. And from now on, they won't have to.

At the high end, there's SPARCstation 2GT. It does all the above, but it runs five times faster than the GS. And gives designers and engineers a level of image quality they've never seen at anywhere close to its price.

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NEW PRODUCTS — SOFTWARE

System software

Ingres Corp. has announced the release of Ingres Tools for Ultrix/SQL, a suite of tools designed for Digital Equipment Corp.'s Ultrix/SQL relational database management system.

The product enables Ultrix users to query data, create tables and perform third- and fourth-generation language applications. The family of tools includes five optional decision support and application development modules.

Pricing ranges from $2,000 to $210,000 for VAX and reduced instruction set computing-based DEC machines. All prices are based on host CPU size.

Ingres
1080 Marina Village Pkwy.
Alameda, Calif. 94501
(415) 769-1400

Development tools

Silvon Software, Inc. has announced that Version 2.3 of its Implementer change control program is available for users developing applications on IBM Application System/400 or System/38 computers.

The product's distributed data management feature ensures that development information for all systems is stored on a single machine, thereby enabling users to develop and maintain one software application concurrently on multiple machines, the vendor said.

Licenses cost between $2,500 and $7,000 for AS/400 Models B10 through B70 and $5,000 for System/38s.

Silvon Software
935 Oaklawn Ave.
Elmhurst, Ill. 60126
(708) 668-9380

Utilities

Sysdata International, Inc. has announced that it has released a product designed to restart batch jobs from their last database management system checkpoint by repositioning all database files, sequential disk files and tapes.

Quickstart is said to enable users to recover from batch abends without having to perform restores or job returns. It also allows a program to be altered and recompiled after a job has been abended.

Jobs can also be viewed, and the frequency of a checkpoint can be altered while a job is still running, according to the vendor.

The product runs in an MVS environment and is priced at $5,600 per CPU.

Sysdata International
175 Fifth Ave.
New York, N.Y. 10010
(212) 447-1581

Apertus Technologies, Inc. has introduced Soap/Premis, a software system designed to enhance the Premis database or a similar database of an independent telephone company. (Premis is a database used by the regional Bell operating companies.)

The Unix-resident software package automatically validates critical elements in a Premis database by comparing Premis data with corrresponding information from other related databases, the vendor said.

Initial pricing for Soap/Premis is $138,000.

Apertus Technologies
7275 Flying Cloud Drive
Eden Prairie, Minn. 55344
(612) 828-0300

Chicago-Soft Ltd. has announced MVS/Quick-Ref, a pop-up quick-reference resource that documents operating system software, development tools and applications for IBM ISPF users.

The software runs on IBM mainframes using MVS.

Pricing ranges from $7,500 to $13,500, depending on CPU size.

Chicago-Soft
738 N. LaSalle St.
Chicago, Ill. 60610
(312) 282-4777

Version 5 of Fulcrum Technologies, Inc.'s Fulcrum Ful/Text is available for Sun Microsystems, Inc.'s Sun 3 and 4 platforms.

The product's client/server architecture allows users to access local and remote collections and permits indexing and retrieval functions to be centralized on server systems. Pricing for servers ranges from $5,000 to $70,000; pricing for clients ranges from $100 to $1,500.

Fulcrum Technologies
560 Rochester St.
Ottawa, Ontario K1S 5K2
(613) 238-1761

Computer-aided software engineering

Language Technology, Inc. has announced Advance II, an OS/VS Cobol-to-VS Cobol II translation tool.

It is said to provide planning and analysis capabilities and a range of conversion reports.

The product runs on IBM System 34, 36 or 38, as well as on all IBM 370-based machines and compatibles running under MVS/ESA, MVS/XA or MVS/SP. It is priced at $27,000 per copy.

Language Technology
27 Congress St.
Salem, Mass. 01970
(508) 741-1507

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• *The Technology Track* explores topics like needs assessment; evaluating languages, environments, and databases; and standards and user groups.

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Weighing upgrade options

BY RICHARD PASTORE
CW STAFF

As the stifling shadows of recession creep across the nation, personal computer managers are more seriously weighing the merits of buying new machines vs. retrofitting old inventory with memory and controller upgrades. Many said upgrades are not cost-effective, but others are taking a hard look at these add-in options.

Retrofitting is "throwing good money after bad," said Marc Kustoff, director of microcomputing at Rhone Poulenc Rorer, Inc., a pharmaceuticals firm in Fort Washington, Pa.

Kustoff's predecessor had been installing Intel Corp. 80386 accelerator cards in IBM PC XTs, but Kustoff put a stop to that practice.

"You're putting a 32-bit processor on an 8-bit bus and still only getting 8-bit performance," Kustoff said.

Higher support costs

Upgrade cards also add complexity and introduce potential reliability weaknesses to an installed base, Kustoff said. With 1,000 PCs in a multisite environment, this could only lead to higher support costs, he said.

Other users with large installed bases see only limited use for retrofitting.

"It's cost effective in some cases," said Sid Diamond, vice president of worldwide information services at Black & Decker Corp. But in most cases, the company prefers to invest in new technology, he said. "We're not cutting back."

PC Edge, a San Jose-based dealer, actually saw a decline in retrofitting this year. Because prices have dropped on Intel 80386SX-based systems, "It's hard to justify spending money upgrading a system rather than buying an SX machine," PC Edge President Sam Adicoff said.

However, Adicoff admitted that current sales are based on budgets set last year. He said he is concerned that current budgets will allow for fewer new system purchases in 1991.

Some users, already hit hard by the weakening economy, add credence to such industry fears. "We're trying to get the most out of our current inventory," said Jerry Weinstein, director of corporate MIS at General Instruments Corp. in Lyndhurst, N.J. A recent restructuring at the company has placed greater emphasis on "careful husbanding of fixed assests inventory," Weinstein said.

Incompatibility a factor

Despite this mandate, Weinstein said, retrofitting will not work in many cases. When the need calls for higher disk speed, the speedier component may be incompatible with the PC's CPU. "Where those mismatches are obvious, we'll pay the extra money and buy new equipment," he said.

At the Haskell Co. in Jacksonville, Fla., "We have needs for additional resources, but the realities of the marketplace right now may dictate otherwise," said William Etheridge, who is the director of computing and communications.

If the yet-to-be-set capital expense budget precludes new systems, Etheridge said, he will dip into the more flexible operating budget for retrofitting funds. "We've got a lot of old 286-class machines we need to do something with," he said.

Some industry analysts who are pessimistic about the 1991 economy said managers will be forced to come to terms with retrofitting.

"The money is not going to be there for wholesale purchases of 386s with 4M bytes of RAM," said William Bluestein, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Upgrade sales expected

Some dealers are expecting a surge in upgrade board sales, particularly in the first six months of this year.

"Until the economy improves, there's going to be interest in trying to upgrade equipment rather than replace it," said Matt Fitzsimmons, owner of a Computerland Corp. franchise in White Plains, N.Y.

Again, the economy is the driving factor, according to Fitzsimmons. "If you work for a company that's cutting back on employees, it's almost sacrilegious to be considering replacing your hardware," he said.

Tough choice: To retrofit or not to retrofit?

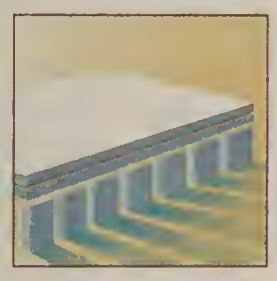
Pros
- Easier to justify in poor economic times.
- Less expensive in the short term.
- Funded by operating budget rather than capital budget.
- Quickest way to boost performance.

Cons
- Only a temporary fix.
- Performance increase may be negligible.
- Possible incompatibility problems.
- Adds complexity, potential support burden.
- Board cost vs. cheap 386SX systems hard to justify.

Intel releases cache controller for 386

BY MAURA J. HARRINGTON
CW STAFF

FOLSOM, Calif. — Intel Corp. recently introduced two versions of its line of Smart Cache memory controllers designed for use with its 20 MHz 80386SX-based microprocessor.



As the second-generation product family to its cache controller for the 386SX chip, the 8K-byte 82395SX and the 16K-byte 82396SX cache controllers reportedly incorporate several chips needed for cache memory into one chip, including the static random-access memory and the cache control logic.

"Basically, this cache controller is the same cache a user would find in the 80486 CPU, only it works with the 386SX chip," said Mike Casey, Intel's product marketing manager for the 386 cache controller product family.

A cache controller acts to improve CPU efficiency by taking information out of the main memory and holding it for the processor until it can use it. With the controller, Intel claimed, users can see improvements of as much as 35% in performance.

The 82395SX is scheduled for volume production by March, and the 82396SX is due out in volume by the second half of 1991. Pricing for the 82396SX cache controller will be $44 in 1,000-unit quantities, the company said. Pricing for the 82395SX is still unavailable.

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♦ The Micro Focus SETUP procedure installs the CICS OS/2 Option on your programming workstation within 30 minutes! This makes CICS OS/2 accessible from the Micro Focus menu system. There is no need to do an initial install on the host.

♦ The integrated preprocessor in the CICS OS/2 Option allows programmers to debug at the EXEC level and view original source code instead of expanded precompiled code.

♦ The BMS screen development facility can design and paint CICS transaction screens or import BMS mapsets.

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—300 MB 5¼" SCSI (<18ms)
—300 MB 5¼" ESDI (<18ms)
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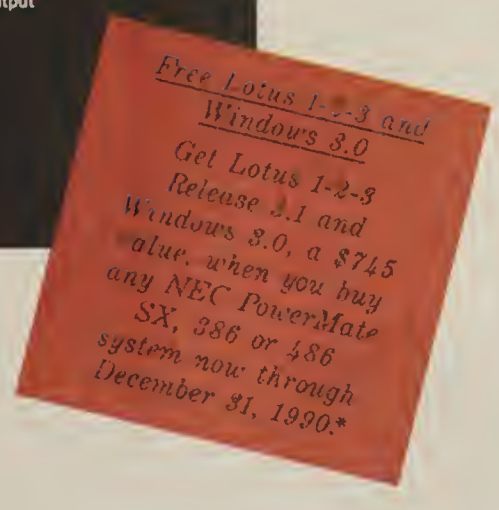

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Std. plotter emulation	✓ Yes	No
Font card slots	✓ 2	1
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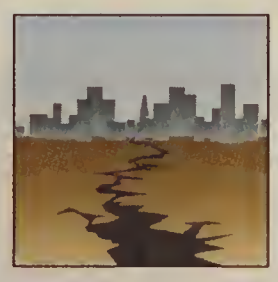
Can home computers predict earthquakes?

BY MEL MANDELL
SPECIAL TO CW

If seismologist Edward Cranswick has his druthers, a network of home computers will provide valuable information on earthquakes in the San Francisco Bay area and perhaps even warn of the next big one.

Cranswick and his collaborator, Robert Banfill, have proposed that inexpensive seismic data acquisition units (SDAU) be attached to only a fraction of the many home computers in and around San Francisco. Having as few as 1% of the estimated 100,000 home computers in the area equipped with the SDAUs could provide important data on how different terrain responds to even the slightest of earthquakes, Cranswick said.

Cranswick, 39, a 10-year veteran of the U.S. Geological Survey in Golden, Colo., has been programming in Fortran since he was in high school in Nyack, N.Y. Banfill, 29, has been working with personal computers for 10 years. He operates a one-person business called Small Systems Support in Big Water, Utah. It was Banfill who convinced Cranswick that PCs could be substituted for large computers in the analysis of seismic data.



The owners of the home computers would be asked to buy the SDAUs, which, the proponents hope, could be made in volume for only $500 each. Each SDAU would consist of an accelerometer connected by cables to a box containing a small microprocessor, at least 1M byte of memory and an internal clock. The accelerometer, which would measure motion in three directions, would be buried in the backyard. Any motion picked up by the accelerometer would be transmitted to the box, which would be loaded with "trigger" algorithms to eliminate unwanted information, such as earth movements caused by passing vehicles. Movements caused by quakes would be stored in random-access memory.

Once a day, the central computers at the Geological Survey offices in Menlo Park, Calif., would poll each SDAU via modem. Only the starting times and amplitude of each movement would be forwarded, Cranswick said, so each transmission should "last no longer than 30 seconds and not interfere with other uses." A light on the SDAU would inform the homeowner that seismic data has been collected. The homeowner could then call the data up on the screen of the home computer, study it and compare it with data from prior quakes stored in the computer. Cranswick said he believes the amateur seismologists in his proposed network could eventually make contributions to seismic research.

The idea for a vast network of SDAUs first came to Cranswick more than 10 years ago after a great earthquake centered in Haicheng, China. Local peasants reported odd behavior by animals and changing water levels in wells just before the earthquake. At the time, some seismologists proposed the creation of low-cost, electronic "seismic animals" to warn of impending earthquakes.

Cranswick and Banfill proposed their concept at a meeting of the American Geophysical Union held in San Francisco on Dec. 6.

Reaction to the proposal was mostly positive. For instance, the head of the Geological Survey in Menlo Park said his office has long operated a network of sophisticated SDAUs, but they number only 84. They are tied to Digital Equipment Corp. PDP-1170, VAX 750 and VAX 780 computers.

Cranswick's network of home SDAUs is still at least a year away. First, he must locate manufacturers who will supply the accelerometer — the most costly component — at a reasonable price. Next, he and Banfill must create more sophisticated trigger algorithms to eliminate irrelevant data generated, for example, by the homeowner's dog unearthing a bone next to the buried accelerometer. Seismic analysis software for each kind of home computer must then be written "most likely in a mixture of languages including C and Fortran," Cranswick said.

The collaborators must then recruit and train amateur seismologists to install and test the SDAUs in the homes of volunteers who join the network.

Mandell is a New York-based free-lance writer.

Cheap laptops raise reliability concern

BY MICHAEL FITZGERALD
and RICHARD PASTORE
CW STAFF

While desktop personal computer clones have earned a grudging acceptance from economically strapped users, the coming influx of portable clones from the Far East and elsewhere has observers worried. Though cheaper than name-brand products, these laptops may spend more time traveling to the repair shop than traveling on business.

"I think there could be a big difference in the quality of these machines," said Peter Teige, an analyst at Gartner Group/Infocorp. "With desktops, a certain level of clone machine is a good buy. But with laptops, you're talking about abuse."

Venerable portable vendors have had experience in ruggedization. "They've spent lots of money in researching and developing high-impact plastics," said Andrew Seybold, an analyst at Dataquest, Inc. in San Jose, Calif. That is not the case with the new clone vendors, he said.

Most of the Pacific Rim cloners exhibiting prototypes at Comdex/Fall '90 in November said price was their only distinction, according to Peter O'Connor at New York-based Laptop Expositions, Inc. The pricing pressures on these vendors may lead to corner-cutting and reliability problems, he said.

With a chance of frequent downtime, support will also be key to deciding between new clones and old-line manufacturers. Customers will be more attracted to vendors with established support than to low-cost clone makers, said John Dunkle, an analyst at Workgroup Technologies, Inc. in Hampton, N.H.

Computer repair shops are already seeing new clones.

Because parts are hard to locate, and sometimes the vendors themselves cannot be found, "I would not recommend purchasing any of those unless you don't plan on having it serviced," said Dan Mazurek, service manager at Advanced Computer Repair Centers in Woburn, Mass.

Wang's latest software complies with Windows 3.0

LOWELL, Mass. — Wang Laboratories, Inc. put another piece of its Open/Architecture strategy into place recently with the announcement of a Microsoft Corp. Windows 3.0-compliant software package.

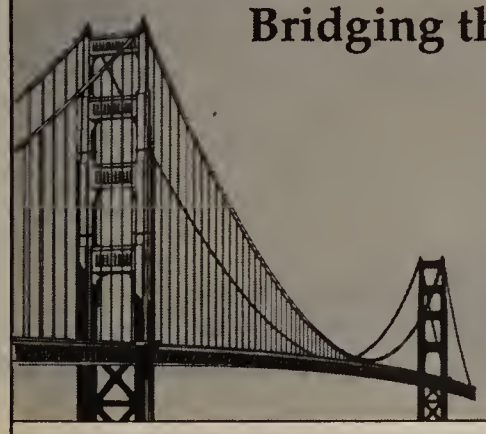
Called Winloc 3.0, the software package will be used in conjunction with the Wang Local Office Connection or Micro Channel Local Office Connection option boards, which allow industry standard architecture and IBM Micro Channel Architecture personal computers to function as workstations on Wang's VS midrange systems.

According to Wang, the product will give users access to VS applications, such as data processing and text editing, by running VS terminal emulation in a PC Window while having PC applications active in other windows on the PC screen.

Winloc 3.0 can be run in Microsoft Windows Real mode, Standard mode or 386 Enhanced mode.

Release 3.0 is priced at $200. Those who already own Winloc 2.0 can upgrade to the latest release for $50, according to the company.

SALLY CUSACK



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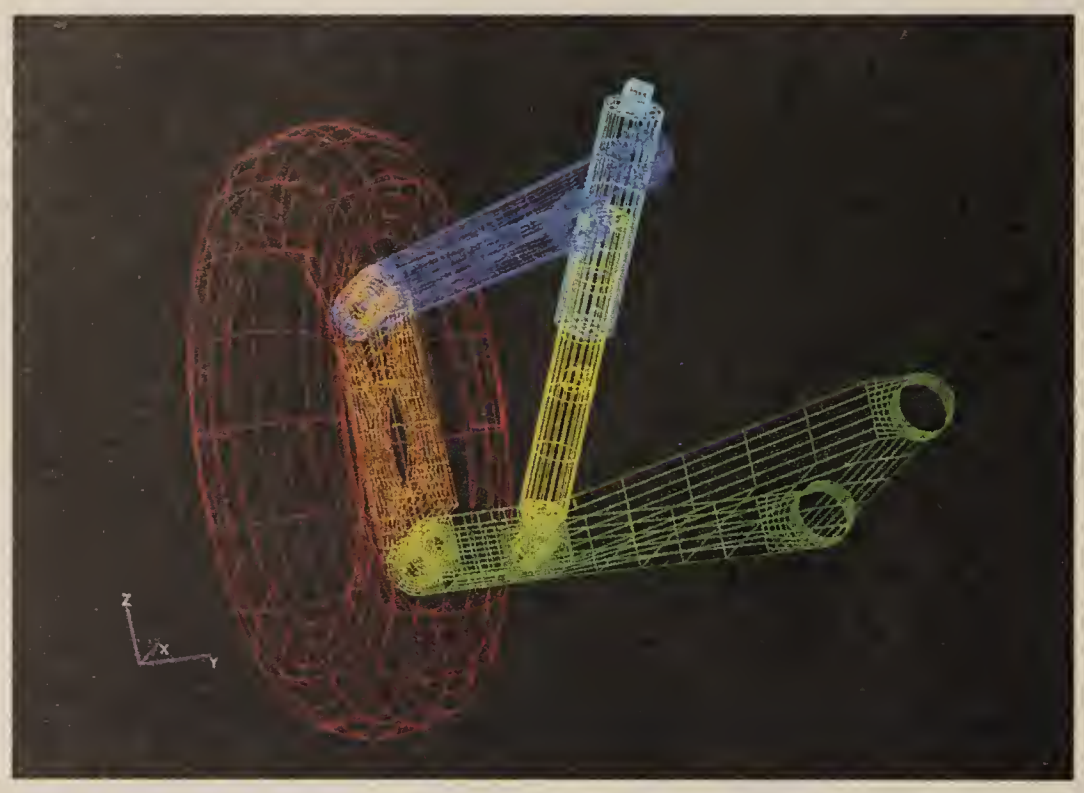

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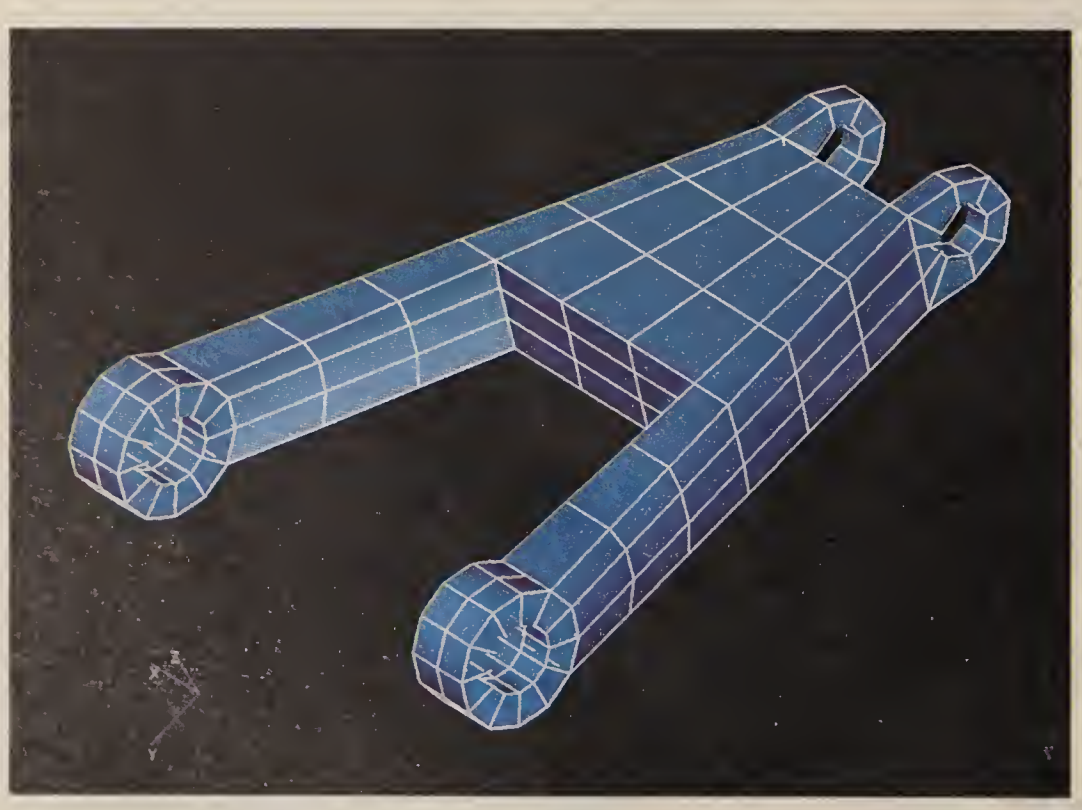

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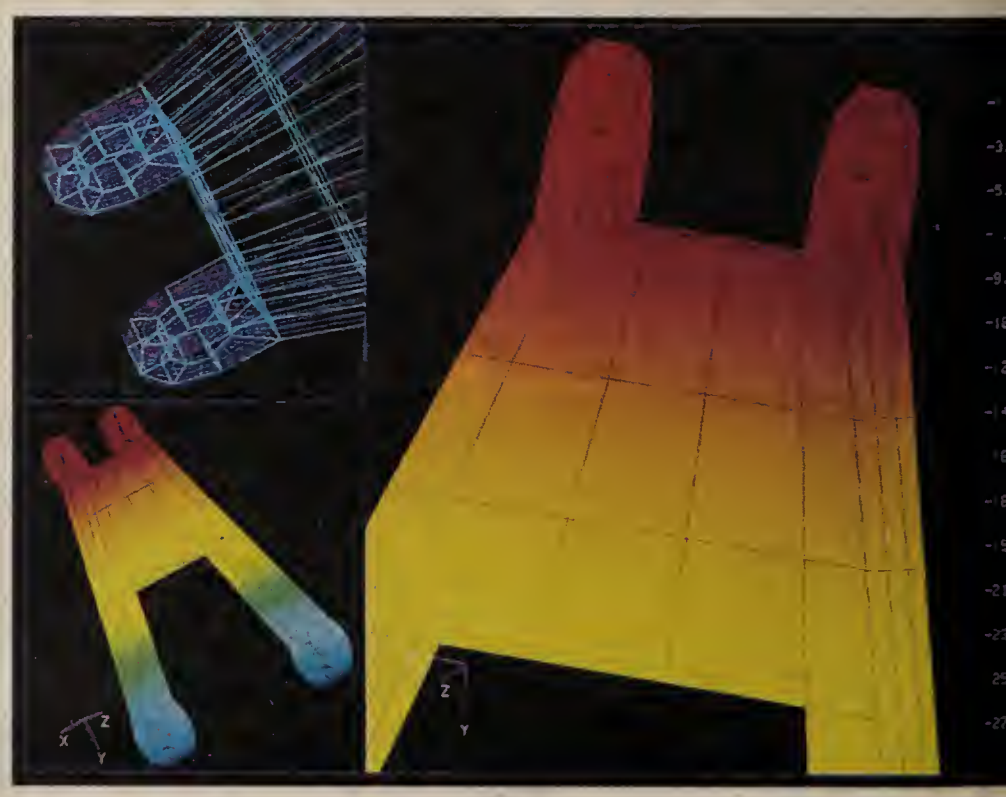

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Model designed and analyzed using PDA Engineering's PATRAN® MCAE system. © 1990 Hewlett-Packard Company CPWG006

a flop in 60 seconds or less.

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HEWLETT PACKARD

Compaq Deskpro 486/25: High speed, high price

Technology Analysis — a roundup of expert opinion about new products. Summaries written by free-lancer Suzanne Weixel.

Compaq Computer Corp.'s Deskpro 486/25, built around the Extended Industry Standard Architecture (EISA) bus, pushes the definition of "personal computer" to its limit. But the system also reaches new heights in price. Loaded, the Deskpro costs nearly $30,000 — extreme even if you use it as a file server, PC reviewers say.

Performance: As far as desktop workstations go, you are not going to find too many systems faster than the Deskpro 486/25. Its storage and memory capacity is impressive — as much as 100M bytes of random-access memory with the motherboard and use of six expansion "pockets." In theory, the EISA bus should boost performance even more, but reviewers say that without a hardware caching EISA controller, you can't get that extra power.

Compatibility: The only software compatibility problem encountered by testers was the inability to switch between applications when running under Quarterdeck Office System's Desqview.

Documentation: As usual, Compaq delivers good documentation. The installation utility that comes with the system also eases setup.

Support: Compaq's one-year limited warranty is fairly standard, but the firm's insistence on dealer-only support is a major drawback, reviewers say.

Value: The Deskpro 486/25 delivers a lot of power, but the base price for a system with a 120M-byte hard drive is high: $13,999.

Server capabilities: The Deskpro's capacity suits it for small to medium-size networks.

Reviews Summary

Criteria	Byte 10/90	Infoworld 7/30/90	PC Week 5/7/90
Performance	A screamer	Excellent	6
Compatibility	Runs software without a hitch	Very good	10
Documentation	NC	Very good	8
Support	Reseller provides service	Good	NC
Value	Most expensive	Satisfactory	3
Reviewer's score	You have to pay a premium	7.8	7.0

Numeric ratings are based on a weighted scale of 1 to 10 where 10 is best. PC Week *and* Infoworld *ratings are included in the score chart (right). NC: No comment. These are excerpts from the reviews. Refer to actual articles for details.*

RATINGS

- Users: Rod Watkins, Gandee & Partners, Inc. (*performance:* 10, *cost:* 3); Ken Sandlin, Brand and Allen Architects, Inc. (10,5); Charline Avey, Indianapolis Water Co. (9,9)
- Analysts: George Thompson, Datapro (8,3); Egil Juliussen, Workstation Labs (8,5.5)
- Financial: Jerry Fleming, Fahnestock & Co. (*overall rating:* 9); Eric Zimits, Rauscher Pierce Refsnes (9); Jim Poyner, William Woodruff & Co. (6).

Compaq Computer Corp. had sales of $2.6 billion for the first nine months of 1990, up from $2.1 billion in 1989. Net income was $320 million over the same period, up from $254 million in 1989.

Deskpro 486/25 score: 74

Points (maximum)	Category
22 (30)	Published reviews
16 (20)	Analysts' ratings
14 (15)	Users' ratings
10 (20)	Cost evaluation
12 (15)	Vendor financials

(Maximum score: 100)

What Compaq users say

"Compaq could provide the software compatibility we needed. I've heard compatibility horror stories from people using other machines."

Charline Avey, Indianapolis Water Co.

"We've had absolutely no problems with the product, but it is rather expensive."

Ken Sandlin, Brand and Allen Architects, Inc., Houston.

(Note: Compaq declined to respond to this review.)

AST Premium 486/25: Speed at a reasonable rate

Premium 486/25 score: 75

Points (maximum)	Category
23 (30)	Published reviews
15 (20)	Analysts' ratings
13 (15)	Users' ratings
13 (20)	Cost evaluation
11 (15)	Vendor financials

(Maximum score: 100)

AST responds

Larry Fortmuller, director, high-performance systems:

Performance: For $1,500 over a 386/33, the Premium 486/25 gives a minimum 30% performance increase. The AST CUPID architecture supports more memory than last year.

Server Capabilities: The system's speed is dependent on hard drives selected, disk arrays, peripherals and Extended Industry Standard Architecture vs. XT/AT bus controllers.

Reviews Summary

Criteria	Infoworld 7/30/90	PC Week 5/7/90	PC World 6/90
Performance	Very good	7	Good
Compatibility	Excellent	8	NC
Documentation	Very good	NC	NC
Support	Excellent	NC	Good
Value	Very good	5	Good
Reviewer's score	7.9	7.6	Best deal for the money

Numeric ratings are based on a weighted scale of 1 to 10 where 10 is best. PC Week *and* Infoworld *ratings are included in the score chart (left). NC: No comment. These are excerpts from the reviews. Refer to actual articles for details.*

RATINGS

- Users: Ken Sandlin, Brand and Allen Architects, Inc. (*performance:* 10, *cost:* 8); Bruce Greif, County Natwest, Inc. (8,6); user at Illinois aerospace equipment manufacturer (8,5)
- Analysts: George Thompson, Datapro (7,5); Egil Juliussen, Workstation Labs (7.5, 8)
- Financial: Jerry Fleming, Fahnestock & Co. (*overall rating:* 6); Eric Zimits, Rauscher Pierce Refsnes (7); Jim Poyner, William Woodruff & Co. (8).

AST Research's net sales were $533.8 million in fiscal year 1990 vs. $456.5 million in fiscal year 1989. The company's gross profit was $173.4 million for 1990 vs. $112 million in 1989.

With the Premium 486/25, AST Research, Inc. has made its Completely Universal Processor I/O Design (CUPID) available in a system that provides both improved performance over Intel Corp. 80286- and 80386-based systems and compatibility with existing hardware and software, according to reviewers.

Performance: The Premium 486/25 is neither too fast nor too slow, scoring somewhere in the middle on most benchmarks. However, the maximum system memory is 48M bytes, and the machine has too few expansion slots, reviewers say.

Compatibility: Its 16-bit AT bus, makes the system compatible with most products. But *Infoworld* had to disable the secondary random-access memory cache to operate a Token-Ring adapter.

Documentation: The Premium 486/25 comes with a short, clearly written manual.

Support: AST's strong technical suppport includes a toll-free help line and an electronic bulletin board.

Value: The standard configuration, which includes 4M bytes of RAM and a 110M-byte hard disk, costs $10,944 — one of the best workstation values around, reviewers agree. In fact, *PC World* claims that the Premium 486/25 delivers better DOS performance than IBM's I486-based system for about $4,000 less.

Server Capabilities: AST was not thinking about networks when it designed the Premium 486/25, reviewers say. Its performance is good enough to support small networks without a lot of traffic, but the AT bus and the lack of expandability limit its usefulness as a server.

Methodology: *Published reviews: average of numeric scores from product reviews published by PC publications listed in reviews summary chart multiplied by three. All ratings are based on a 1-to-10 scale, where 10 is excellent. Analysts: average overall product ratings multiplied by 2. Users: average overall product ratings multiplied by 1.5. Cost: average cost to get product up and running ratings from both groups multiplied by 2. Financials: average of analysts ratings of vendor financials and product sales from financial analysts multiplied by 1.5.*

Technology is beacon of light

Computers are used as teaching tools for children in Boston community

BY CAROL HILDEBRAND
CW STAFF

Instead of a mustard seed, David L. Evans placed his faith in computers.

His belief resulted in the expansion of a church tutorial program that uses high technology to help teach young people. It also led the way for Evans to be named as President Bush's 311th Daily Point of Light.

Evans, who left an engineering career at IBM to work in the admissions department at Harvard University, said he started to see possibilities when he bought a personal computer five or six years ago.

"I said to myself, 'Well, OK now, what can I do here to help my kids with their homework?' So I taught myself Borland International's Turbo Pascal and started to write software," said Evans, now the senior admissions officer in the undergraduate office at Harvard.

When the programs showed positive results with his children, Evans said, he began to wonder whether these applications might be useful in a larger setting. So he began talking with area churches and found a niche at the Charles Street African Methodist Episcopal Church in Boston, which has had a tutorial program in place since 1984. "Charles Street was very fascinated by high tech," Evans recalled.

> "WE NEED TO put educational enterprise back into the hands of the community."
>
> DAVID L. EVANS
> PRESIDENTIAL HONOREE

With a grant from the Larsen Fund in Southport, Conn., the church bought four Intel Corp. 80386-based PCs from Standard Computer Co., along with four printers.

Evans and a group of 10 volunteers teach children ranging from preschool to sixth grade twice weekly. The programs cover such subjects as multiplication tables, division, spelling, French and Latin. Evans also stays after services on Sunday to encourage people to try out the machines. He said it is important to have this kind of neighborhood service. "We need to put educational enterprise back into the hands of the community," Evans said.

Evans wrote his programs with both the parent and child in mind. When users get a correct answer, they are rewarded with a snippet of song — for instance, the opening bars of "Swing Low, Sweet Chariot." Parents who are not familiar with computers can then tell when the children are doing well and praise them accordingly. "I was seeking to give Mom's dignity back," Evans said.

The church is currently seeking funding to buy more software. "We've bought some and need more," Evans explained, adding that as the program becomes less maintenance-intensive, he hopes to expand it to other churches in the area.

Undaunted by holidays, Lotus adds enhancements

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — The merriment associated with the month of December failed to distract Lotus Development Corp. from the grindstone, as the vendor managed to enhance customer service and update several packages.

Late last month, Lotus announced several extensions to its customer service. First, the spreadsheet maker unwrapped an on-line support database available through Compuserve's Information Service.

The Lotus Technical Library reportedly contains several thousand answers to questions about Lotus' product line. The data contained therein goes back as far as the introduction of 1-2-3 in 1983.

The library allows users to find solutions by searching for a product name, feature, key word or phrase.

Second, Lotus said that it now offers 900-number telephone support for all of its personal computer-based products. The first minute is free; each additional minute costs $2.

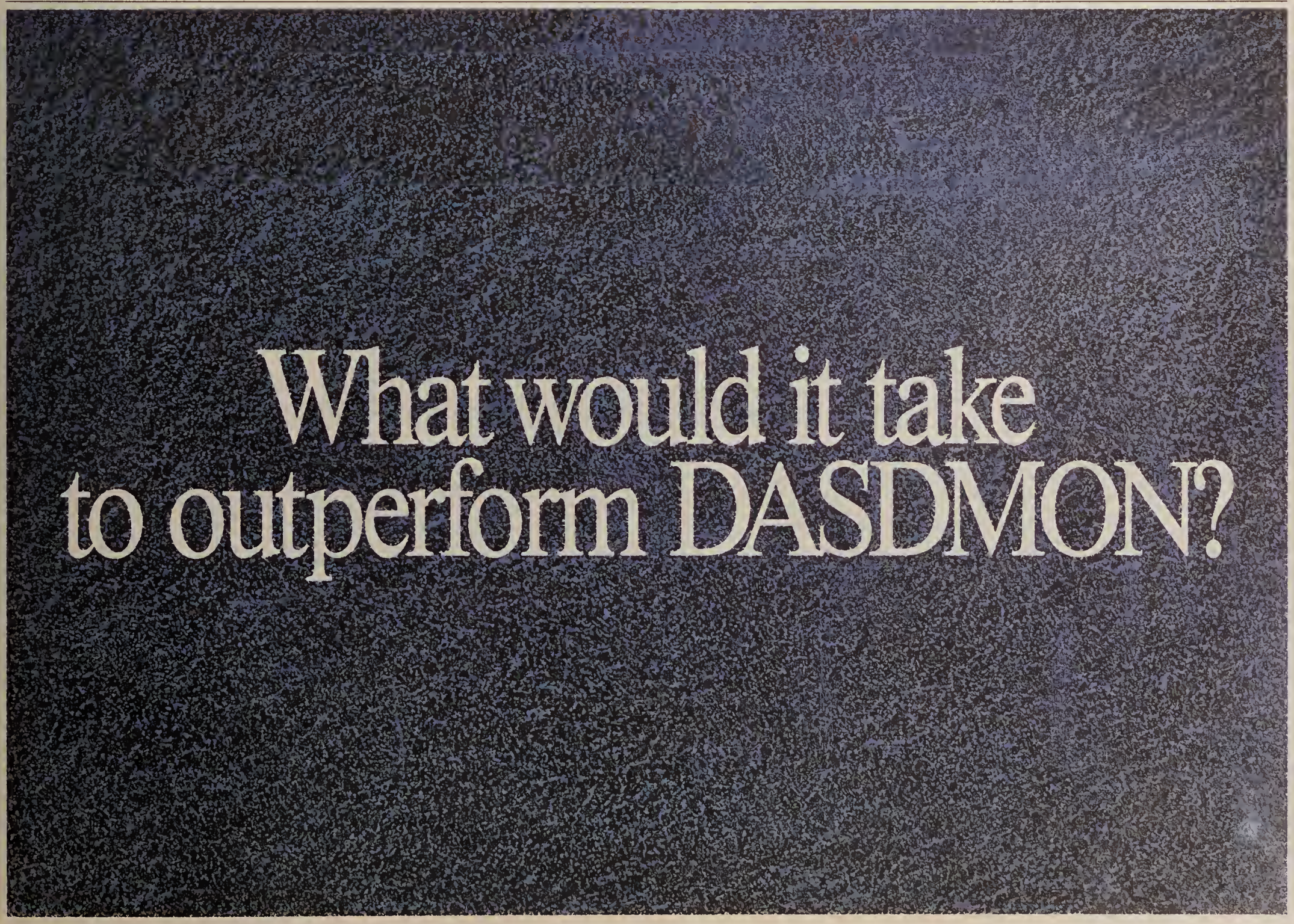
Third, this month Lotus begins offering product support for hearing-impaired customers.

Lotus also shipped the Bonus Viewer Disk for Magellan Version 2.0, utility software for IBM Personal Computers and compatibles.

The new disk adds mouse support, a program information file, an icon file for use with Microsoft Corp.'s Windows 3.0 and seven new viewers. It also updates and improves Magellan 2.0's existing viewers.

The Bonus Viewer Disk is offered free of charge to registered users of Magellan 2.0; these users will receive a mailing this month enabling them to order the disk, the vendor said.

Agenda entered the legal market with the release of two Agenda Version 2.0 legal applications: Practice Management and Trial Notebook. Both will be offered free of charge to owners of Agenda 2.0. A card with instructions on how to obtain the legal applications is included with Agenda 2.0.



Tool helps distribute applications

BY JOHANNA AMBROSIO
CW STAFF

Distributed applications may be the "wave of the future," but for that to happen, someone will need to start writing them today. A tool scheduled to be available in a few weeks aims to help users do just that.

Called XIPC, the package helps standardize the interprocess communications required for distributed computing. These are the tasks that need to be synchronized for applications such as database access across heterogeneous machines.

Expected to be released this month, XIPC will support OS/2 and several versions of Unix, including Xenix, SunOS and AIX, as well as Ethernet. Future versions planned for mid-1991 include Digital Equipment Corp.'s VMS and Ultrix, DOS Windows, token-ring, Decnet and other versions of Unix.

Actually, XIPC is not new. The tool's developer, Momentum Software Corp. in Englewood, N.J., has sold standalone versions for Unix, OS/2 and VMS since January 1990. This has helped users write applications that are portable across all three platforms, said Daniel I. Schwartz, Momentum's vice president of software development. With the new version, he said, developers can write software that takes advantage of client/server and cooperative processing models.

The traditional problem with writing distributed and portable applications, Schwartz said, is that the interprocess communications library is different for each operating system.

Also, some of the libraries — especially for Unix and VMS — "are old, and they show it," Schwartz said. They do not have the functionality needed for today's applications, such as multiplexing. "You can't even kluge this in VMS," he said.

Another constraint is that queues for interprocess communications messages in the older systems have a predetermined size. After that limit has been exceeded, messages can be lost. With Momentum's XIPC, Schwartz said, messages are automatically spooled onto a disk until they can take their place in the message queue.

Schwartz said interprocess communications has been "like an orphan child with no real tools. Programmers have tricks they use to get around these problems, but each solution is specific to each operating system. There's a lot of praying and drudge work."

And that is where XIPC comes in. It is a "superset" of existing interprocess communications libraries, Schwartz said, and as such, already includes elements familiar to developers. Also, because it sits outside the kernel, no changes to the operating systems are necessary. "You just put the XIPC information in one file and update your applications," he said.

Momentum has no current plans to port XIPC to the mainframe world, but that could change. "It's not a technical problem," Schwartz said. "We'd just need someone to lend us a mainframe."

The five-person company was founded in 1986 by Schwartz and Ely Eshel, president of the company. The two met during stints as consultants to Wall Street firms.

Wall Street companies, in fact, remain among the client base. Current users of XIPC include Dean Witter Reynolds, Inc. and Quotron Systems, Inc.

MICRO BITS

Tektronix, Supermac to develop color products

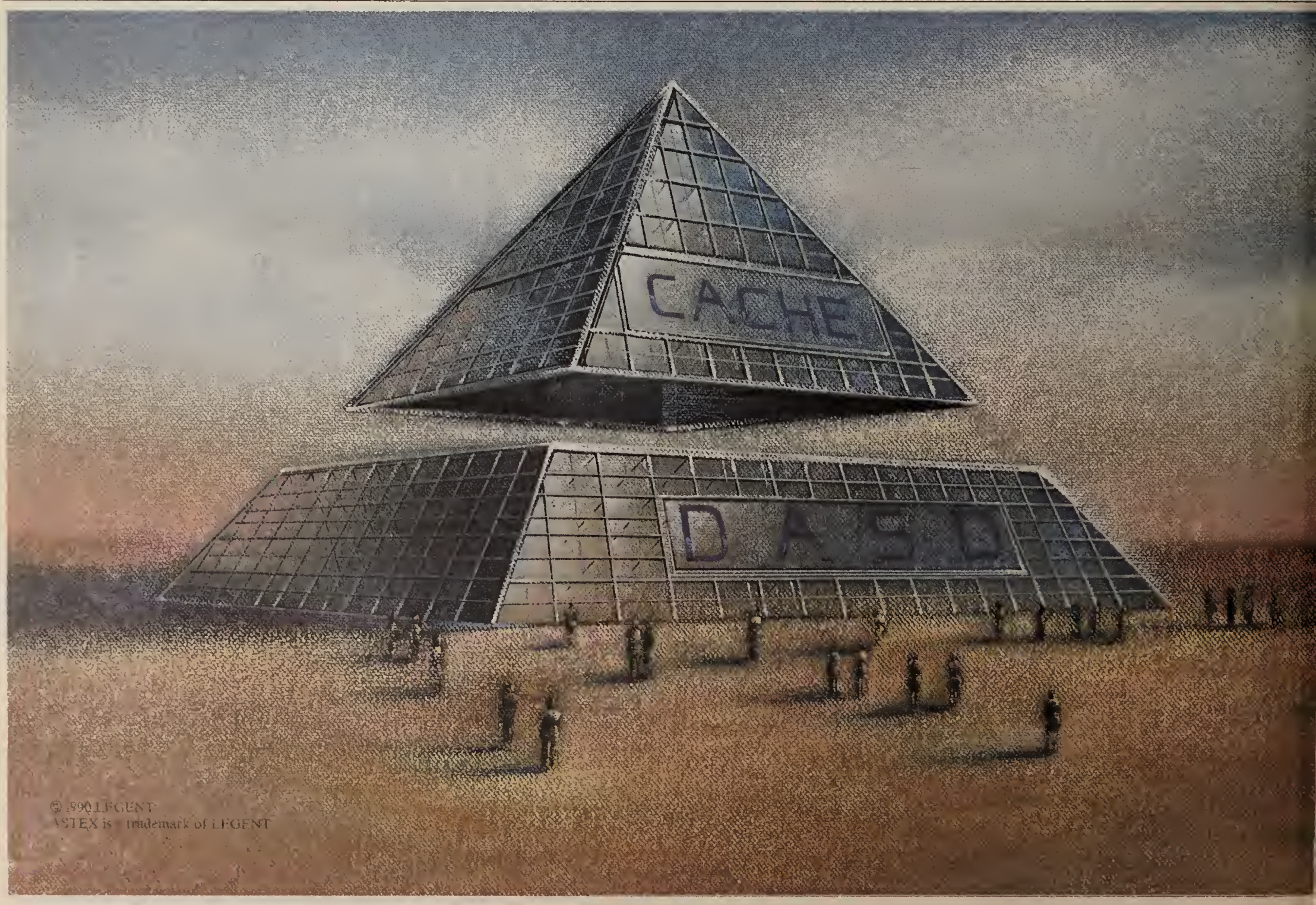
Tektronix, Inc. and **Supermac Technology Co.** have formed a partnership to develop color fidelity products for the Apple Computer, Inc. Macintosh electronic publishing industry. The development and marketing pact will incorporate a combination of Tektronix's Tekcolor color fidelity system and Supermac's Supermatch Professional Color Matching system.

NCR Corp. and **Micah Systems, Inc.** said they will jointly market a health information system that uses Micah's client/server software and NCR's System 3000.

Gammalink announced recently that three computer manufacturers have chosen the Gammafax CP as the core facsimile technology platform for integrating fax into their systems applications. The vendors include **Hewlett-Packard Co.**, **Digital Equipment Corp.** and **Unisys Corp.** Separately, **IBM** has selected Gammalink products for use in its Office Facsimile Application.

Sybase, Inc. has launched the Sybase Open Tools Program, under which the company will act as coordinating agent for the sales and support of various third-party tools to customers worldwide. The goal of the program is to provide customers with a single point of contact for software purchases and support in a multivendor environment, Sybase said.

Interleaf, Inc. and **IBM** have signed a cooperative software agreement that authorizes IBM to market Interleaf publishing software for the IBM RISC System/6000. Interleaf will set prices, terms and conditions for its software.



Versacad gets versatile

Computervision CAD products aimed at PCs

BY SALLY CUSACK
CW STAFF

BEDFORD, Mass. — Computervision, a Prime Computer, Inc. company specializing in computer-aided design software, recently announced several additions to its Versacad software family that targets MS-DOS, Apple Computer, Inc. Macintosh and AT&T Unix System V platform users.

There are currently 80,000 Versacad users.

The company has released Version 6.0 of Versacad/386 and Versacad Design. The software, which runs on Intel Corp. 80386- and I486-based MS-DOS personal computers, now provides an attribute function for attaching nongraphical information to any graphic object, the company said.

Using this function, users can extract attribute information, such as price and material type, and pass it on to a database for generating bills of materials, estimates and other reports.

Other features in Version 6.0 include associative linear dimensions, two-dimensional construction planes for creating complex three-dimensional models, a drawing import function and direct file exchange capabilities between Versacad/386 or Versacad Design software and Versacad/Macintosh Edition software on the Apple Macintosh platform.

Version 6.0 of Versacad/386 is available immediately and is priced at $3,495. Versacad Design Version 6.0 lists at $2,995. According to the company, there are 45,000 licensed users on Versacad DOS platforms.

More versatile Mac

Computervision also announced an add-on package for its Versacad Macintosh products. Priced at $295, the Versacad Drawing Manager program reportedly allows users to manage large numbers of drawings by creating and maintaining project folders.

Versacad Design Version 5.4, Revision 7 for the Sparcstation is also available for shipment.

Priced at $3,495, the software runs on Sun Microsystems, Inc. and Hewlett-Packard Co. workstations, as well as HP Apollo Division workstations.

Mips operating system learning many tongues

By taking commands that are unique to the English language out of the core of its version of the Unix operating system, Mips Computer Systems, Inc. is attempting to make its software easier to use internationally. The international operating system, called RISC/OS 4.5I, will run on all of Mips' computers, from low-end workstations to minicomputers.

The first language being offered is Japanese. "You type something in English, and it will reinterpret it into Kanji," a Mips spokeswoman said.

By externalizing English idiosyncrasies such as punctuation and date displays, Mips can more easily develop the operating system to work with other languages, according to Chodi McReynolds, director of international field operations. "The operating system isn't English; it's just a set of code, so, for instance, you don't have to completely redo the operating system to use Greek."

NEW DEALS

Credit union to image with Metafile

The IBM Mid America Employees Federal Credit Union has chosen **Metafile Information System**'s Metaview software as its document imaging system. The credit union will replace a microfiche system used for storing new loan documents. The application will be developed in-house using Metafile's Developer's Workbench. The new system will provide optical storage for the 700,000 loan documents generated annually.

Data General Corp. has selected **Mind's Eye, Inc.**'s computer-aided manufacturing software to help forecast, optimize and manage critical resource assignments for DG's factory operations. Mind's Eye will be used as a high-level tool for manufacturing process load and capability planning.

Arthur Andersen & Co.'s Audit Division, which has more than 4,000 workstations, has signed a worldwide site license for use of **Roykore, Inc.**'s ABC Flowcharter.

Next Computer, Inc. recently began volume shipments of its Motorola, Inc. 68040-based computer. Two new color computers, the Nextstation Color and the Nextdimension, are supposed to ship on schedule this quarter. The company also said that it has succeeded in luring Erna Arnesen away from Cupertino, Calif.-based Apple Computer, Inc. in order to set up a value-added reseller (VAR) channel. Arnesen created the VAR program at Apple.

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LEGENT

NEW PRODUCTS

Peripherals

Moniterm Corp. has announced its Viking Gold series of personal computer and Apple Computer, Inc. Macintosh monochrome grayscale and color monitors.

The series includes the Viking 3/91 M window screen model, a 20-in. PC display optimized for Microsoft Corp.'s Windows 3.0 and the Viking 3/72 M, a 20-in. monochrome monitor designed for Macintosh systems.

The Viking 3/91 M is priced at $1,490, and the Viking 3/72 M is priced at $1,295.

Moniterm
5470 Green Circle Drive
Minnetonka, Minn. 55343
(612) 935-4151

Wyse Technology, Inc. and Lapis Technologies, Inc. have announced Amdek Powerpage, a 14-in. monochrome video display subsystem designed for Apple Computer, Inc.'s Macintosh SE, SE/30 and the II series of computers.

The device couples a 14-in. monochrome monitor with a Lapis video board that enables users to adapt their monitors to personal computer and Macintosh platforms, the vendor said.

Amdek Powerpage is priced at $599.

Wyse Technology
3471 N. First St.
San Jose, Calif. 95134
(408) 473-1200

Relisys, Inc. has announced a 15-in. analog color monitor that uses a single video integrated circuit and yields a dot pitch of 0.28mm.

The Model RE1528 features 30- to 48-KHz multiscanning horizontal frequency tracking and 50- to 90-Hz vertical scanning. It is based on Motorola, Inc.'s MC1381 multimode monitor processor, which supports IBM's Video Graphics Array (VGA) standards.

The product is suitable for IBM Personal System/2 VGA graphic adapters and Apple Computer, Inc. Macintosh II systems and is priced at $1,095.

Relisys
320 S. Milpitas Blvd.
Milpitas, Calif. 95035
(408) 945-9000

Systems

Sun Moon Star's North American Personal Computing Division has announced the introduction of a Microsoft Corp. Windows-based Intel Corp. 80386SX, 16-MHz compact disc/read-only memory (CD-ROM) computer.

The product is bundled with CD-ROM- and MS-DOS-based software. It includes a proprietary CD-Setgo installation disk, which can automatically install the CD-ROM drive and bundled software, the vendor said.

A unit equipped with a multisynchronous monitor is priced at $3,295. A version with an IBM Video Graphics Array monitor costs $2,995.

Sun Moon Star
1941 Ringwood Ave.
San Jose, Calif. 95131
(408) 452-7811

Tatung Science and Technology, Inc. has introduced an entry-level expandable S-bus Sun Microsystems, Inc. Scalable Processor Architecture (Sparc)-compatible color desktop system that features a 19-in. color monitor and three S-bus slots for I/O expansion.

The Tatung Sparc Workstation includes a 20-MHz diskless CPU that yields 12.5 million instructions per second and 1.4 million floating point operations per second, the vendor said. Its 8M-byte main memory can be expanded to 64M bytes.

The product is priced at $6,995.

Tatung Science and Technology
2060 Ringwood Ave.
San Jose, Calif. 95131
(408) 435-0140

DTK Computer, Inc. has announced the DLP/1, an Intel Corp. 80386SX-based laptop that features a removable keyboard, a built-in touch mouse and an IBM Video Graphics Array page-white LCD.

The product includes 1M byte of random-access memory and an optional 2,400K bit/sec. modem card that fits into an internal RS-232 port.

It costs $4,000 for a 1M-byte RAM configuration that includes a 3½-in., 1.44M-byte floppy disk drive, an 80M-byte hard disk and an internal battery.

Volume shipments are scheduled for this spring.

DTK Computer
15711 E. Valley Blvd.
City of Industry, Calif. 91744
(818) 333-7533

Data storage

Ardat, Inc. has added a data compression feature to Qicstream, the software package it includes with its Hornet line of personal computer tape backup drives.

The data compression feature enables the drives to provide between 80M and 240M bytes of storage capacity. The drives include 40M- and 80M-byte versions that support standard and long-length tape.

Pricing for a 40M-byte internal drive begins at $399, and initial pricing for an 80M-byte internal version is $599.

Ardat
1650 Sunflower Ave.
Costa Mesa, Calif. 92626
(714) 641-1230

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For more information about acquiring your own Anacomp system, or having Anacomp operate one for you through a service bureau, write P. Lang Lowrey, Senior Vice President, Worldwide Marketing Division, Anacomp, Inc., One Buckhead Plaza, 3060 Peachtree Road, N.W., Suite 1700, Atlanta, Georgia 30305. Or simply call 404-262-2667.

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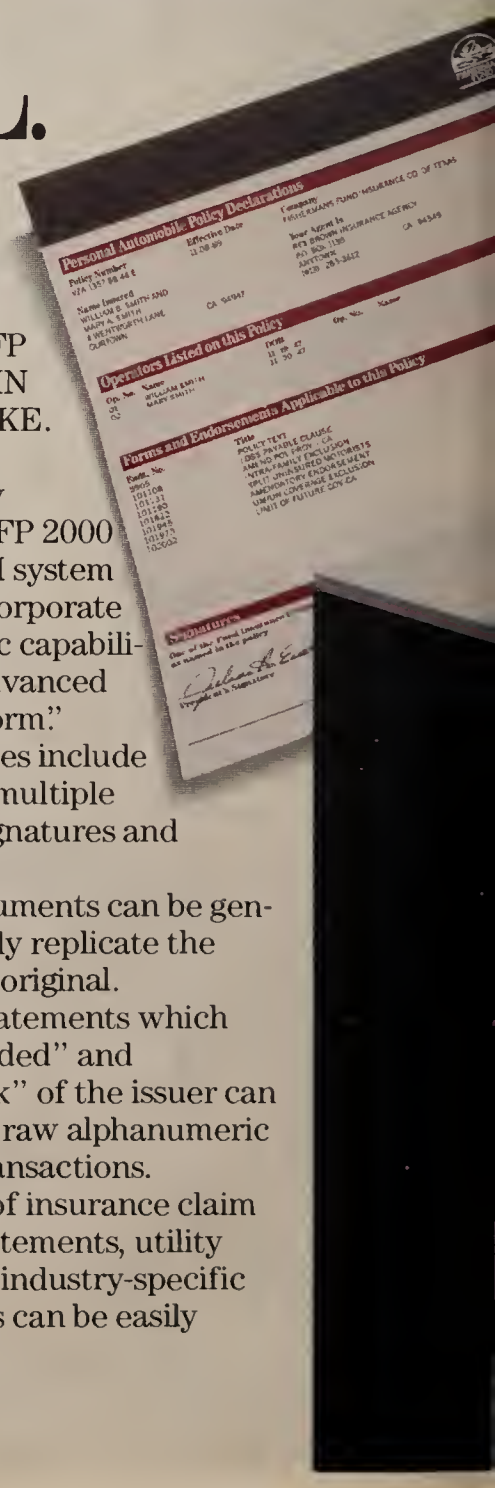

Tandberg Data, Inc. has introduced a ¼-in. streaming tape drive that reportedly can store up to 1G byte of data in less than 88 minutes without requiring data compression.

Model TDC 4100 was designed for use in backing up hard disks, providing archival data storage and downloading application software programs. It transfers data at 200K bit/sec., moves tape at 53.3 in./sec. while recording, and it features a fast-search capability that allows single files to be accessed in 40 seconds, the vendor said.

The product is priced at $1,395.

Tandberg Data
2649 Towngate Road
Westlake Village, Calif. 91361
(805) 495-8384

Board-level devices

Definicon International Corp. has introduced Cad Race, an IBM Video Graphics Array adapter designed for users of Autodesk, Inc.'s Autocad and other computer-aided design systems.

The board is driven by a Tseng Laboratories, Inc. ET4000 graphics controller equipped with a built-in cache. Near-photographic color representations can be achieved by using Edsun Laboratories, Inc.'s Continuous Edge Graphics technology.

The board is priced at $495.

Definicon International
181-B W. Orangethorpe
Placentia, Calif. 92670
(714) 961-0438

Training

Fliptrack Learning Systems, a division of Mosaic Media, Inc., has announced a self-paced audiocassette course on Version 3 of Apple Computer, Inc.'s Quark Xpress.

How to Use Quark Xpress, Versions 2.1, 2.12 and 3 guides users through a series of text manipulation, graphic cropping and sizing tasks. A quick reference guide and a data disk with realistic practice files are also included with the product.

The cost of the audiocassette course is $195.

Fliptrack Learning Systems
999 Main St.
Glen Ellyn, Ill. 60137
(708) 790-1117

Software applications packages

Computer Support Corp. has announced Version 3.1 of its Arts and Letters Graphics Editor, a graphics tool equipped with more than 5,000 clip art images and 50 typefaces.

Its features include a warp/perspective function, a special effects tool for modifying text, clip art or free-form graphics and a graduated fill function that allows users to create interiors in one step.

The product is priced at $695 and is being offered free to users who purchased a previous version after Nov. 12, 1990.

Computer Support
15926 Midway Road
Dallas, Texas 75244
(214) 661-8960

Design Science, Inc. has begun shipping an IBM Personal Computer version of Mathtype, its mathematical equation editor designed for Microsoft Corp.'s Windows environments.

The product enables users to build complex mathematical equations by first pointing and clicking and then pasting them into documents.

The new version features pull-down menus from which more than 270 symbols and mathematical components can be picked to build various equations, the vendor said.

Mathtype for Windows is priced at $249.

Design Science
4028 Broadway
Long Beach, Calif. 90803
(213) 433-0685

Letraset USA has announced Shapes, an add-on product for Colorstudio ($995), its color image creation and manipulation software package designed for Apple Computer, Inc. Macintosh systems.

The product is an Adobe Systems, Inc. Postscript-based raster image processor that enables users to render objects or fonts as anti-aliased, the vendor said. Anti-aliasing is a process used to smooth out jagged edges in digitally produced objects and fonts.

The add-on product costs $295 and is being included free of charge for a limited time with purchases of Colorstudio.

Letraset
40 Eisenhower Drive
Paramus, N.J. 07653
(201) 845-6100

Development tools

Borland International, Inc. has announced Version 6.0 of Turbo Pascal and Turbo Pascal Professional, its object-oriented programming language-based software packages designed for IBM Personal Computer XTs, ATs, Personal System/2s and compatibles.

Turbo Pascal 6.0 ($149.95) includes turbo vision, which enables users to write applications that include built-in support for overlapping windows, an integrated development environment and a built-in assembler.

Turbo Pascal Professional 6.0 ($299.95) includes the same features as Turbo Pascal 6.0, plus a Turbo Drive Compiler, a debugger, a profiler and an assembler.

Borland International
1800 Green Hills Road
Scotts Valley, Calif. 95066
(408) 439-1619

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How others see the Macintosh-to-mainframe connection.

How Avatar sees it.

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MacMainFrame distributes terminal emulation, file transfer, printer emulation and mainframe graphics across a wide variety of networking schemes.

Since it's fully AppleTalk compatible, EtherTalk, TokenTalk and LocalTalk networks are part of the solution, too.

For customization, there's Avatar's Programmer's Toolkit, a full range of Applications Programming Interface (API) tools. For example, Avatar's Hypercard API has been used to develop a front end system to PROFS, IBM's electronic mail system.

The MacMainFrame difference.

Unlike some Mac-to-mainframe connections, MacMainFrame enhances the benefits of the Macintosh user experience.

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Avatar

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DCW9

FDDI vendors meet for test

BY JOANIE M. WEXLER
CW STAFF

In rural Durham, N.H., away from the scrutiny of eagle-eyed customers and the trade press, a 20-vendor Fiber Distributed Data Interface (FDDI) local-area network interoperability test will be running quietly this week.

The event, planned since June by the University of New Hampshire's Interoperability Lab, aims to iron out implementation differences among different vendors' products "to speed up fixing interoperability glitches so FDDI products can be made more cheaply," said Barry Reinhold, director of the lab.

FDDI is a 100M bit/sec. token-ring LAN with built-in redundancy via two counterrotating rings. Bandwidth-hungry data applications are emerging that demand FDDI's rapid-fire speeds and the high reliability of its glass fiber medium — particularly in backbone scenarios. Cost and interoperability issues for the gelling FDDI LAN, however, are still keeping many users at an arm's length.

"Interoperability is a tricky business in FDDI," explained Reinhold, who is also the Durhan school's network manager and runs an FDDI backbone for the university. "Because FDDI is the most complex LAN, the probability that something will go wrong in a multivendor environment is naturally higher."

Complex problems

One aspect of FDDI that makes it complex is that it is the only LAN with network management capabilities inherent in its standard (see story below).

Reinhold explained that different interpretations of a standard's many components can result in varying implementations and that "one guy screwing up a little bit can affect the whole network." Smooth multivendor interoperability, he said, will drive FDDI devices toward becoming commodity products and get prices down.

Fostering products that can run data at 100M bit/sec. over copper media — led by the American National Standards Institute FDDI committee — will compete with the FDDI and cut costs, Reinhold said.

He described this week's test as the first opportunity for vendors to "sit down with a big ring and really work on the problems." Public demonstrations, such as the FDDI interoperability demonstration at the Interop '90 show in October, Reinhold said, do not afford vendors the opportunity to "get technical" with each other, because of demands to "look good" to the outside world.

A similar multivendor FDDI test will reportedly take place at the end of the month at Advanced Micro Devices, Inc.'s Advanced Networking Test Center in Sunnyvale, Calif.

Mandatory management?

Though a near-final version of the FDDI standard's Station Management (SMT) component was distributed for letter ballot by the American National Standards Institute FDDI committee in April, tweaks to SMT are still under discussion.

The major debate remaining among standards committee members — aside from proposals to run FDDI's 100M bit/sec. speeds over copper media and create lower cost fiber components with relaxed specifications — is how much network management should be mandated in SMT.

FDDI specifies only the physical and data link layers of the Open Systems Interconnect protocol stack, and thus SMT addresses network management at just those two layers.

The issue of Parameter Management Frames (PMF) was not resolved at the group's December meeting in San Jose, Calif., according to Floyd Ross, chairman of the SMT working group. He explained that PMF, which is currently an option in the standard, allows users to remotely set attributes and parameters in an FDDI station. Committee members are debating whether to leave PMF an optional SMT component or make it mandatory.

"Advocates of not using PMF anticipate using Simple Network Management Protocol or some other higher layer management tool in conjunction with SMT," explained Barry Reinhold, director of the University of New Hampshire Interoperability Lab and network manager for the university. "But in some applications running over just the first two layers, you don't always need intelligent management."

JOANIE M. WEXLER

Report finds image transmission rising

BY ELISABETH HORWITT
CW STAFF

PARSIPPANY, N.J. — A rising tide of documents is threatening to swamp businesses, thereby generating a healthy computer-based image transmission equipment and services market, according to a recent report by The Eastern Research Corp.

The transfer of images, including freeze-frame video, will mesh with the growing demand for videoconferencing to bring on a new generation of broadband networking services, the research firm further predicted.

Paper flood

Eastern Research cited government statistics that U.S. businesses today add a total of more than 250 million new documents to their files and generate more than 3.2 billion copies and computer printouts each day. An IBM study cited by Eastern Research found that 75% to 80% of all paper output from computers is then input into another computer.

Users are thus demanding new ways to increase the speed and lower the cost of transferring information that resides on paper documents, the report said. Vendors are responding with network equipment and services that move images directly from one location and system to another, without the need for manual input, Eastern Research said.

Sales to private network users of imaging equipment such as scanners and facsimile boards will see a compound annual growth rate of 40.3%, from $10.4 million in 1990 to $94.3 million in 1999, the report predicted.

Imaging telecommunications service revenue will grow from $509.8 million in 1990 to $3.3 billion in 1999 — a compound annual growth rate of 22.9%, according to the firm.

Another related high-growth sector is freeze-frame video, which allows a personal computer equipped with a special camera to transmit frozen video im-

Continued on page 55

Applications driving imaging services

Horizontal breakdown of imaging telecommunications service market

	1990	1993	1996	1999	CAGR
Transaction processing	$219.20	$433.60	$807.90	$1,471.10	23.60%
Archiving & Storage	$168.20	$333.90	$624.20	$1,140.50	23.80%
Electronic publishing	$56.10	$114.60	$220.30	$413.20	25.60%
Tech drawing central	$66.30	$114.60	$183.60	$281.00	15.30%
Total	$509.80	$996.70	$1,836.00	$3,305.80	22.90%

Source: The Eastern Research Corp. CW Chart: Doreen St. John

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"My ultimate PC system? Well, for starters, it's got to be compatible with everything I've got already… so you can take a floppy from an old PC, pop it into a new one, and it will work."

"Networking PCs is a major pain. I'd like to see PCs designed to do networking without lots of configuration work… and still connect with all the networks I've already installed."

"We've got plenty of data… the challenge is to put it in the hands of decision makers in a form they can use. The perfect PC would be an ideal client to all my information systems."

"Every time I turn around, vendors change the operating system or interface. I want to be able to drop the hottest new box on my executives' desks and know their software will run."

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Not long ago, we invited hundreds of IS managers to talk about their wildest desires in a personal computer system.

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They wanted a graphical user interface with no compromise in performance. Like Macintosh.

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"A graphical interface is clearly important... users love 'em. But the architecture has to be designed to handle it or the performance compromise is unacceptable."

"I'd like to see more discipline from software developers. Commands should be consistent for every application... it would eliminate the cost of constantly retraining."

"My company's needs go way beyond off-the-shelf software. I need serious development tools my existing programming staff can use to develop custom apps quickly and easily."

"Macintosh? No kidding?"

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UK may open local networking to competition

BY ELISABETH HORWITT
CW STAFF

Pending deregulation of the UK's local networking services market could bring lower prices, a greater choice of providers and possibly administrative and billing confusion to companies that do business there. A multiplicity of vendors — including U.S. regional holding companies and their CATV partners — are preparing to offer their versions of local services in various UK districts, pending the outcome of the Duopoly Review, now before the British government.

Great Britain's administration has already granted various UK CATV companies permission to offer telecom services in one or more of the districts where they own CATV franchises. Several U.S. local carriers have established a toehold in the UK's local networking market by partnering with such franchises. Indeed, US West Communications, Inc. began officially offering telecom services in the UK's Croydon district late last year, in partnership with a United Artists Communications, Inc. subsidiary.

The British government is considering whether to allow the CATV companies to provide telecom services not only within, but also among their own franchise areas, according to a spokeswoman for a UK regulatory agency, the Office of Telecommunications (Oftel). The review "is asking for more freedom with switching arrangements: at the moment, you have to go through either [Cable & Wireless PLC subsidiary] Mercury or British Telecom to go to another franchise area," as well as to make an overseas call, she added.

A favorable outcome for the Duopoly Review would, in effect, open up the local telecom market by "really encouraging people sitting on the fence that they can make a go of the telecom business," said Tom Morrow, vice president of US West's cable communications subsidiary.

While not all local providers would choose to do their own interregional switching, "having the option to do so would increase our leverage" in determining what prices the interexchange carriers will charge for such services, Morrow said.

A growing throng of viable alternative local providers would challenge British Telecom's long-standing dominance of the local loop and help the UK's other major provider, Mercury Communications, give its customers local connections more on a par with British Telecom's. Indeed, firms such as US West have already arranged for Mercury to provide interexchange service to their customers.

"We welcome competition, as long as it's fair," said British Telecom spokesman Derek Wilson. While conceding the fairness of more open competition on the local loop, he added, British Telecom feels that "it is unfair for our license to prohibit us from offering cable TV." The company plans to formally submit its views to the government prior to the end of the review period. "Many of the cable TV companies now in the UK are owned by powerful and rich North American companies that don't need this type of protection," Wilson said.

Mixed feelings

The regional holding companies' venture into the British local market is a mixed blessing to Fortune 500 users, according to Kenneth Phillips, chairman of the Committee of Corporate Telecommunications Users and vice president of telecom policy at Citicorp. "In theory, competition in the international arena bodes well [for major users] because it should drive prices closer to cost," Phillips said.

On the other hand, large users in the U.S. want assurances that, as the Bell operating companies' domestic customers, they do not become "the ultimate guarantors of success in those overseas ventures," he added.

Business users in the UK may suffer if too many providers offer too many conflicting options in various parts of that region, according to Jeremy Frank, director of international communications at Gartner Group, Inc. "Most users are not sophisticated enough to choose between providers for the local loop, the interexchange carrier and the exiting local loop."

Another source of confusion will be how to keep track of billing and costs across so many different carriers. Each carrier may tender a different bill for each site — as sometimes happens in UK-to-U.S. communications now, Morrow said. US West now acts as a one-source supplier and biller in the UK for its own local services and interexchange services from Mercury, he added, but "if you have multiple sites on different franchises, cost analysis could be tough."

While U.S. West is starting small, offering plain old telephone services to only a few of United Artists' UK franchises, the company wants to extend services across the UK and eventually offer a full range of data and voice services as well as leased-line links, Morrow said. "Our total investment in the UK by the time we get all services up will be $300 million — and not just in United Artists," he added.

One way that the CATV telecom providers may attract business initially is by "enabling customers to buy all their services from one package: cable TV, shopping services, plus telephony," the Oftel spokeswoman said.

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COMMENTARY

Jeffrey N. Fritz

Knowing no boundaries

Transparency of access is an ideal that is slowly approaching reality. Simply put, transparency of access allows a user to invoke local-area network-based data services in exactly the same manner, every time, independent of whether the user is across the room or across the country from the system on which said services reside.

Obviously, we are a long way from having this kind of accessibility today. For example, a user on the office Ethernet LAN can invoke a variety of Transmission Control Protocol/Internet Protocol (TCP/IP)-based services, such as Telnet for terminal-to-host access and File Transfer Protocol (FTP) for file transfer.

From home at night or from on the road, however, the user's access is very different. The user has only host-supported Telnet capability and therefore cannot use FTP at all.

EMERGING telecommunications protocols, such as Integrated Services Digital Network (ISDN) and frame relay, are beginning to provide the kind of transmission speeds LAN users require.

There are two reasons why remote access to LAN services is so much less satisfactory than local access, even when you equip your home personal computer or portable with TCP/IP software.

The first is the fact that LAN protocols such as TCP/IP simply were not designed to run over ordinary telephone modem-type connections. Special software is needed to permit LAN protocols to run, in their full functionality, over a switched connection.

The second reason is that your typical PC modem connection — 9.6K bit/sec. or less — is extremely slow to LAN habitue. A copy of Wordperfect resident on the server takes much too long to load, and a large file transfer is simply out of the question. As for graphics-intensive applications, many are rendered completely useless.

Fortunately, both problems are close to being resolved. Emerging telecommunications protocols, such as Integrated Services Digital Network (ISDN) and frame relay, are beginning to provide the kind of transmission speeds LAN users require, over switched links that — when such services become more widespread — will enable users to access full-scale LAN services from virtually anywhere.

Meanwhile, software has emerged that is capable of extending LAN connections over such switched, high-speed synchronous links so the user literally cannot tell the difference in service quality between the office LAN and remote access. One such program is Synchronous Link Interconnect Protocol, which was originally developed by the National Center for Supercomputer Applications. Another example is Sun Microsystem's PC-NFS.

Even more promising is the fact that certain vendors are now testing new software that will provide even more efficient and powerful ways to extend TCP/IP protocols over remote LAN connections.

West Virginia University has been testing ISDN in combination with some of the programs described above as a method to extend LAN services to remote offices as well as faculty and staff homes. Such configurations enable the user to access a LAN, not as a dumb terminal with restricted speeds, but as a regular TCP/IP terminal with full LAN services.

Furthermore, there is no reason to restrict this type of end-to-end connectivity to TCP/IP alone. With terminal server hardware and the proper software drivers, other protocols, such as Local-Area Transport and Xerox Network Systems and even the newer ones that follow the Open Systems Interconnect model, can be adapted to LAN extension as well.

The university's early test results are very encouraging. In fact, one test application running over a single ISDN line is producing TCP/IP connectivity at speeds exceeding 64K bit/sec. There is no perceptible difference between connectivity on the local LAN or the remote LAN in this test application.

One final thought: The ISDN user community, many ISDN vendors and the regional Bell operating companies in particular are regularly moaning about the lack of good ISDN applications. It is easy to see how ISDN's on-the-fly dial-up data capabilities uniquely address the need for transparency of access.

Fritz is a data communications analyst at West Virginia University in Morgantown, W. Va.

EIS

If You're Thinking About It...

Unisys plans open CTOS

BY ELLIS BOOKER
CW STAFF

BLUE BELL, Pa. — Making good a year-old promise to open its networked workstations to other operating systems and networking schemes, Unisys Corp. last month beefed up several aspects of its CTOS workstation line, adding support for Unix servers and Microsoft Corp.'s Windows 3.0 and introducing a sophisticated network management system.

Key among the enhancements is support for Network File System (NFS), a de facto industry standard for file transfers among networked computers. With NFS services such as remote procedure call and external data representation, CTOS workstations will be able to interoperate with either CTOS or Unix servers on a network. Non-Unisys systems will also be able access CTOS files.

NFS support also brings the CTOS line into sync with the Unisys Architecture, the open systems initiative Unisys outlined earlier this year.

"Essentially, what they're doing is incorporating industry-standard application programming interfaces," said John Dunkle, vice president at Workgroup Technologies, Inc. in Hampton, N.H. Giving CTOS users access to other operating systems will help avert a hemorrhaging to other operating systems, he added.

Unisys, which acquired CTOS developer Convergent Technologies, Inc. in 1988, claims there are 800,000 workstations from all vendors using the multitasking, network-enabled CTOS operating system worldwide, making it the third most popular operating system behind the DOS and the Apple Computer, Inc. Macintosh operating systems.

Hoping to keep those customers on board, Unisys also announced a Windows 3.0 software emulator. The emulator provides for multiple virtual DOS sessions on an Intel Corp. 80386-class CTOS workstation. The PC Emulator Release 4.1 is priced at $435 per server plus $529 per workstation.

Unisys also announced Incontrol, a management and software distribution tool for CTOS networks. Incontrol features automatic routing of alerts to local or remote management centers, from which a systems administrator can access a SQL-based Oracle Systems Corp. event database.

Unisys said a version of Incontrol that is compatible with IBM's Netview network management system will be ready in the second quarter of 1991 and that the new version will "converge" with international standards such as the International Standards Organization's Open Systems Interconnect Common Management Information Protocol.

Railways seek to expand EDI

BY JIM NASH
CW STAFF

When a railroad company transfers a cargo container to a ship, the move is often only the halfway mark for U.S. goods. Domestic railroads see an opportunity in that situation to provide wider services for customers. Some railroad executives said they expect their industry will someday transport bills of lading, invoices, sales contracts and even payments for goods shipped anywhere on Earth.

In a sense, they will become as much carriers of information as carriers of freight, said Kathleen Davila, a spokeswoman for CSX Transportation, Inc., a rail company in Jacksonville, Fla.

Last month, a subsidiary of the Assocation of American Railroads took a step in that direction when it joined with Infonet Services Corp. to build a global electronic data interchange (EDI) network.

Railinc Corp. in Washington, D.C., became one of Infonet's first North American partners to establish an EDI mailbox, said Laura Andrus, program director at El Segundo, Calif.-based Infonet.

Most major U.S. railroad companies already offer EDI services such as freight tracking for their domestic clients.

Rail companies watching U.S. firms beef up their exports are finding that the traditional paper-based communications still in place for overseas shipment are inadequate, said Henry Meetze, Railinc president.

Data must be transferred along with the cargo, a process that invites errors in paper-based systems.

Ron Byrd, assistant vice president of management services at Southern Pacific Transportation Co. in San Francisco, said, "I think [Railinc] is going to evolve. Within the next five years, [rail companies] could bypass the [ocean-going] shipper and transmit administrative messages and invoices directly to receiving firms."

Today, Southern Pacific relies heavily on ocean lines to transmit much of the paper and electronic data between sender and receiver, he said.

Railinc, Andrus said, is better than most EDI setups in use today, which she described as "dial, dump and pray," in that it confirms accurate transmission.

Meetze said Railinc is piggybacking its existing EDI software on Infonet's backbone into Europe, Australia and Asia.

LAN card eases some PS/2 server processing load

BY JOANIE M. WEXLER
CW STAFF

WHITE PLAINS, N.Y. — IBM last month started shipping a $1,030 IBM Token-Ring local-area network adapter that reportedly beefs up the processing performance of a Personal System/2 server by an order of six.

According to IBM, data transfers between the system memory of Micro Channel Architecture-based PS/2s and the 16/4 Busmaster Server Adapter/A card completely bypass the server's main processor. This allows the server to use the excess CPU power for other functions, such as accessing other network adapter cards and processing applications.

In previous Token-Ring configurations, the same $957 adapter ran on both client workstations and servers.

"We anticipate that customers will continually expect more work out of their LANs," commented Jane Celly-Sharp, IBM's manager of LAN marketing in Atlanta. "With the price so close to that of the client card, anyone in acquisition mode for a server is a target customer."

Busmaster Server Adapter/A is currently supported by Novell, Inc. and Banyan Systems, Inc. network operating systems. An OS/2 LAN Server version is in the works, IBM said.

BIT BLAST

Cabletron gear OK'd

The software drivers for **Cabletron Systems, Inc.**'s E1000, E2000 and E3000 Desktop Network Interface cards have been certified by **Digital Equipment Corp.** and **Banyan Systems, Inc.** as interoperable with DEC's Lanworks for DOS and Banyan's Virtual Networking Software, or Vines, Version 4.0 network operating system.

Uniplex Integration Systems, Inc. has reportedly signed a one-year marketing agreement with **GTE Supply** in Dallas, a distributor and value-added reseller (VAR). GTE and Uniplex plan to conduct a series of VAR recruitment seminars throughout the U.S., and GTE will market Uniplex Business Software, an integrated office system.

The Unix Products Division of **Rabbit Software Corp.** has announced a distribution agreement with **Dickens Data Systems.** Dickens will distribute Rabbit's Unix-to-IBM connectivity products for the IBM RISC System/6000, AIX for the Personal System/2 and The Santa Cruz Operation's Xenix and Unix operating environments.

Imaging

CONTINUED FROM PAGE 49

ages to a remote PC for display purposes. One common use is to enable engineers at a central site to diagnose and troubleshoot problems at remote assembly lines and plants.

For example, McDonnell Douglas Computer Systems Co. has been experimenting for the last few months with technology that, "in some cases, goes right onto the factory floor with a freeze-frame camera, transmitting those images back to sites for evaluation, diagnostics" and other purposes, according to Wayne Hannah, director of telecommunications at the aerospace firm.

Other companies that have implemented similar freeze-frame transmission applications include the three largest U.S. auto makers, chemical distributors such as Du Pont Co. and electrical power equipment manufacturers such as General Electric Co. and Westinghouse Electric Corp., Eastern Research reported.

A third related technology for sharing ideas over distance is videoconferencing. Indeed, McDonnell Douglas uses high-quality, full-motion videoconferencing systems, which it now has at 11 special sites, to transfer high-resolution graphics drawings for perusal at remote sites, Hannah said.

Some companies hope to see switched high-speed services such as broadband Integrated Services Digital Network (ISDN) drive down the cost of setting up full videoconferencing and image transfer, Hannah said. The advantage of such services is that instead of paying monthly charges for dedicated T1 links that only get used occasionally for videoconferencing, users can set up high-resolution videoconferencing links on the fly and only pay for the time they use them.

Eastern Research predicted that the ISDN services for imaging applications would see a 50.1% compound annual growth rate through 1999. While broadband ISDN will not emerge as a viable option until the mid-1990s, the market will then explode, with broadband ISDN adapter revenue rocketing from $5.5 million in 1995 to $76.5 million in 1999, the report said.

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*David W. DeLong, co-author of "Executive Support Systems: The Emergence of Top Management Computer Use."

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NEW PRODUCTS

Local-area networking software

Hughes LAN Systems, a subsidiary of Hughes Aircraft Co., has announced an integrated connectivity software product that provides access to Banyan Systems, Inc.'s Virtual Networking Software, Microsoft Corp.'s LAN Manager and AT&T's Star Group network operating systems.

Prolinc Version 1.0 allows users of DOS and Microsoft's Windows 3.0 personal computer-based workstations to concurrently access multiple hosts, file servers and network operating systems, the vendor said.

The product is priced at $595 per workstation.

Hughes LAN Systems
1225 Charleston Road
Mountain View, Calif. 94043
(415) 966-7300

Lanshark Systems has announced a network utility designed for Banyan Systems, Inc.'s Virtual Networking Software (Vines) networks.

Diskalarm is a Vines server-based product designed to monitor free disk space on each of the server's drives. If free space on a drive dips below a user-specified level, the product alerts a specified list of network administrators.

License fees are priced at $295 per server.

Lanshark Systems
3000 Stone Mountain Drive
Pickerington, Ohio 43147
(614) 866-5553

Network services

BT Tymnet, Inc. has announced an IBM midrange connectivity package that provides users with access to multiple IBM environments such as the Application System/400.

The package includes Multipoint SDLC, a bundled, port-based synchronous data link control (SDLC) service that reportedly operates at 9.6K bit/sec. on the terminal connection side. The service allows SDLC devices to be linked with SDLC hosts via the Tymnet Global Network, the vendor said.

Flat-rate bundled pricing for monthly rates and installation charges for host and terminal interfaces range from $400 to $4,200, depending on the type of service selected.

BT Tymnet
2560 N. First St.
San Jose, Calif. 95161
(408) 922-0250

Infonet has announced a portable personal communications tool that enables users from more than 115 countries to access Infonet Services Corp.'s Notebook Network, a global communications and information service for users of laptop and notebook computers.

The Personal Communicator includes Poquet Computer Corp.'s pocket-size personal computer, The Poquet PC, Infonet's Notice Notebook software package and a Touchbase Systems, Inc. Worldport 2,400 bit/sec. portable modem.

The product is priced at $1,995, including a corporate network contract.

Infonet
2100 E. Grand Ave.
El Segundo, Calif. 90245
(213) 335-2875

Customer premises equipment

Teleprocessing Products, Inc.'s Model 1/SM Speed Matching channel service unit/data service unit was designed for matching the speed of synchronous customer terminal equipment with a 56K-bit/sec. digital service line.

The product supports terminal speeds of 2.4K, 4.8K, 9.6K, 19.2K and 56K bit/sec., according to the vendor. V.35 and RS-232C terminal interfaces and a proprietary unattended remote loop-back feature are included.

Model 1/SM comes with a one-year parts and labor warranty and is priced at $675.

Teleprocessing Products
4565 E. Industrial St.
Simi Valley, Calif. 93063
(805) 522-8147

Host-to-host

Network Systems Corp. has announced four cross-point network switches designed to comply with the ANSI High-Performance Parallel Interface (HIPPI) standard.

The PS8-8 includes four full-duplex channels and reserves a destination port for the next access.

The PS32 line includes three models: PS32-108, PS32-116 and PS32-132. The PS32-132 is equipped with up to 32 HIPPI source ports and 32 HIPPI destination ports, which can be paired to support up to 32 simultaneous data streams with an aggregate capacity of 25.6G bit/sec., the vendor said.

The PS8-8 has a list price of $56,000. The PS32 models are priced from $50,000 to $200,000, depending on configuration.

Network Systems
7600 Boone Ave. North
Minneapolis, Minn. 55428
(612) 424-4888

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MANAGER'S JOURNAL

EXECUTIVE TRACK

John B. Young has been named to the new position of vice president of corporate technology and information systems at Boston educational publisher **Houghton Mifflin Co.**

Young was most recently vice president of Houghton Mifflin's software division, a job he has held since 1989. In his new position, he is responsible for developing and implementing the company's IS and publishing technology strategies.

Young joined Houghton Mifflin in 1973 as a manager of systems and programming. He became director of software products in 1983 and was promoted to corporate services vice president and director of Houghton Mifflin Software Laboratories in 1984. He became corporate services vice president and director of corporate editorial systems development in 1986. He was named director of technology in 1988.

Replacing Young as head of the software division is **Steven R. Vana-Paxhia**, who was given the title of director. He comes to Houghton Mifflin from Macmillan, Inc.

Jeffrey C. Rehm has been named manager of the MIS department at **Rea Wire Industries, Inc.**, a manufacturing firm in Fort Wayne, Ind.

Rehm joined Rea from Whirlpool Corp. He holds an MBA from Bradley University in Peoria, Ill.

Who's on the go?

Changing jobs? Promoting an assistant? Your peers want to know who is coming and going, and *Computerworld* wants to help by mentioning any IS job changes in Executive Track. When you have news about staff changes, be sure to drop a note and photo or have your public relations department write to Clinton Wilder, Senior Editor, Management, *Computerworld*, Box 9171, 375 Cochituate Road, Framingham, Mass. 01701-9171.

Not the usual vanilla IS chief

Ben & Jerry's Williams offers staff independence and all the ice cream they want

BY CHRISTOPHER LINDQUIST
CW STAFF

Ben & Jerry's Homemade, Inc. is not your typical company. It would only seem fitting that the company's information systems chief was not typical either — and he isn't.

Keith Williams, the company's 36-year-old director of data processing, fits in well with the relaxed atmosphere of Ben & Jerry's, the $70 million gourmet ice cream maker based in scenic Waterbury, Vt. A flannel shirt, jeans and work boots take the place of a suit and tie. Williams' curly hair and beard bring to mind images of the Grateful Dead's Jerry Garcia, the namesake of "Cherry Garcia," one of the company's most popular flavors. A poster on his office wall asks, "If it's not fun, why do it?"

Williams' route into information systems was not the norm, either. "I'm uneducated. I scraped through high school — just barely," Williams says with the honesty that permeates his conversation. "My ultimate motivation was to be a bum in the park, and that doesn't go far."

So he joined the U.S. Air Force in 1972, and it was there that his computer career began. He worked on IBM mainframe hardware and software during an eight-year Air Force stint.

After leaving the service, Williams worked for nine months at Becton, Dickinson & Co., a medical equipment manufacturer in Westwood, Mass., and then went to Ocean Spray Cranberries, Inc. in Plymouth, Mass. After one year as a systems programmer at Ocean Spray, Williams decided to go back to his home state of Vermont.

PROFILE: Keith Williams

Stella Johnson

Position: *Director of data processing, Ben & Jerry's Homemade, Inc.*
Mission: *To make all of the company's critical data easily accessible to the users who need it, no matter what their platforms and levels of IS knowledge.*

"I had had my fill of company politics," he says. "There was a lot of back stabbing, scrambling and scratching for positions. I couldn't handle that stuff."

He took a position as data processing manager at the Cooperative Health Information Center of Vermont in Burlington. When that company went out of business, Williams started his own consulting, contract programming and value-added reselling firm targeting the market for medical, law and dental practices.

"That went on for about six years, working long hours, long weeks — 30 hours a day, eight days a week. My blood pressure was at the point where one of the doctors I worked for

Continued on page 60

Balancing need for information and privacy

BY MITCH BETTS
CW STAFF

Americans worried about government surveillance have a new "Big Brother" to worry about: their employers.

There is a growing conflict between companies' need for more detailed information about workers and employees' privacy rights, according to a study by the New York-based Conference Board.

The study, "Employee Privacy," found that U.S. corporations have a growing appetite for information about the health and criminal records of their employees and job applicants.

Sixty-five percent of the 301 U.S. companies surveyed said their needs for health information — such as physical or psychiatric conditions and evidence of alcohol or drug abuse — have increased in the last five years.

Likewise, U.S. firms are eager to get more information about criminal histories, a trend not seen in Canada or Europe. The regional differences are most likely because of U.S. companies' greater concern about employee theft, sabotage, security of proprietary information and real or potential conflicts of interest, according to Ron Berenbeim, author of the study.

He said there is some ambivalence among U.S. corporations regarding the use of various surveillance techniques, such as searching lockers and handbags, videotaping employees and monitoring telephone and computer use. Despite fairly widespread use of these methods, many personnel executives called them ineffective and damaging to morale, Berenbeim said.

The Conference Board did not specifically address monitoring of electronic mail, but the Electronic Mail Association is urging companies to spell out how much privacy an employee can expect regarding E-mail. For example, will there be routine monitoring of E-mail messages? Are personal messages allowed on the company's E-mail system?

"Most employers should establish privacy policies that deal with all media of communication used by employees, rather than singling out electronic mail as if it posed some unique threat to employee privacy," said a white paper commissioned by the Arlington, Va.-based association.

Vanilla

CONTINUED FROM PAGE 59

looked at me and checked it and gave me 10 minutes to live."

His chance to work at Ben & Jerry's came in early 1988 in the form of a help-wanted ad. "Someone dropped off the ad at my office," Williams says, and he decided that "if there is any place I can work . . . Ben & Jerry's is it."

Williams was given the job of data processing manager and found himself faced with a rapidly growing company based almost entirely on manual systems. A handful of personal computers and a Digital Equipment Corp. PDP-11 running a single-user accounting and payroll system was the extent of computerization. A DEC Microvax had been brought in, but the manufacturing resource planning package the company had purchased had not been installed on it.

"At that point, the MIS department was 5-foot-8 and 200 pounds, and I was all of it," Williams says. Nine months later, with computerization beginning to take hold, it became obvious that the department needed to be expanded. Williams wanted to stay focused on installing the technology, so he considered hiring an outside manager to run the department. After some indecision, Williams decided to manage the department himself.

Williams currently manages seven full-time employees and one contract programmer in Ben & Jerry's DEC VAX 6210-based IS department. The company is world famous for its innovative corporate policies, and one of them poses a unique challenge for Williams.

> "I SPEND A LOT of time basically being a buffer between upper management and the people who work for me so they can continue to enjoy what they do."
>
> KEITH WILLIAMS
> BEN & JERRY'S

Ben & Jerry's maintains a five-to-one salary cap for all employees — the highest salary cannot be more than five times the lowest. Finding people to fill available positions is never easy, but the salary cap could exacerbate the problem by making it difficult to pay technical people their full market value.

"I get nervous about losing good people because they can get paid more elsewhere," he says. In response to this, Williams strives to make the department an enjoyable place to work.

"I spend a lot of time basically being a buffer between upper management and the people who work for me so they can continue to enjoy what they do," Williams says. The strategy appears to be working.

Tom Phillips, the company's VAX sys-

Oracle gives new 'flavor'

One of the first things Keith Williams needed to decide after joining Ben & Jerry's was whether to even bother installing the manufacturing resource planning (MRP) system that had been purchased before his arrival.

Williams sensed from the beginning that the package was not flexible enough to handle the Ben & Jerry's style of business. "We take your order. Seven days later the truck backs up to the loading dock, and we're loading ice cream, and you call in and say, 'Can you change that pallet of vanilla and put on a pallet of Heath Bar?' We'll unload the truck and make the change as long as the truck hasn't reached the interstate."

No other package could be found to fit the company's flexibility requirements, so Williams created a three-person development team to implement an in-house MRP package based on Oracle Systems Corp. applications. None of the programmers assigned to the task had previous Oracle experience, and the first phase of the project — an inventory control program — took more than one year to complete.

Williams says, however, that the length of implementation had less to do with the inexperience of the programmers than with getting user departments to use new methods — a hurdle faced by IS departments in all industries.

"When a company grows so fast, you grab the fastest way to fix a problem and figure that when things slow down, you'll go back and straighten it out," he says. "But things never slowed down. So you've got all these poor practices in place that are nobody's fault; it's just that business has been continuing, and there's never been a slow time to take account."

The decision to go with internal development has had some unforeseen side benefits, Williams says. "It's opening our eyes to areas in the business that are not being run efficiently and areas that could stand a change," he says.

CHRISTOPHER LINDQUIST

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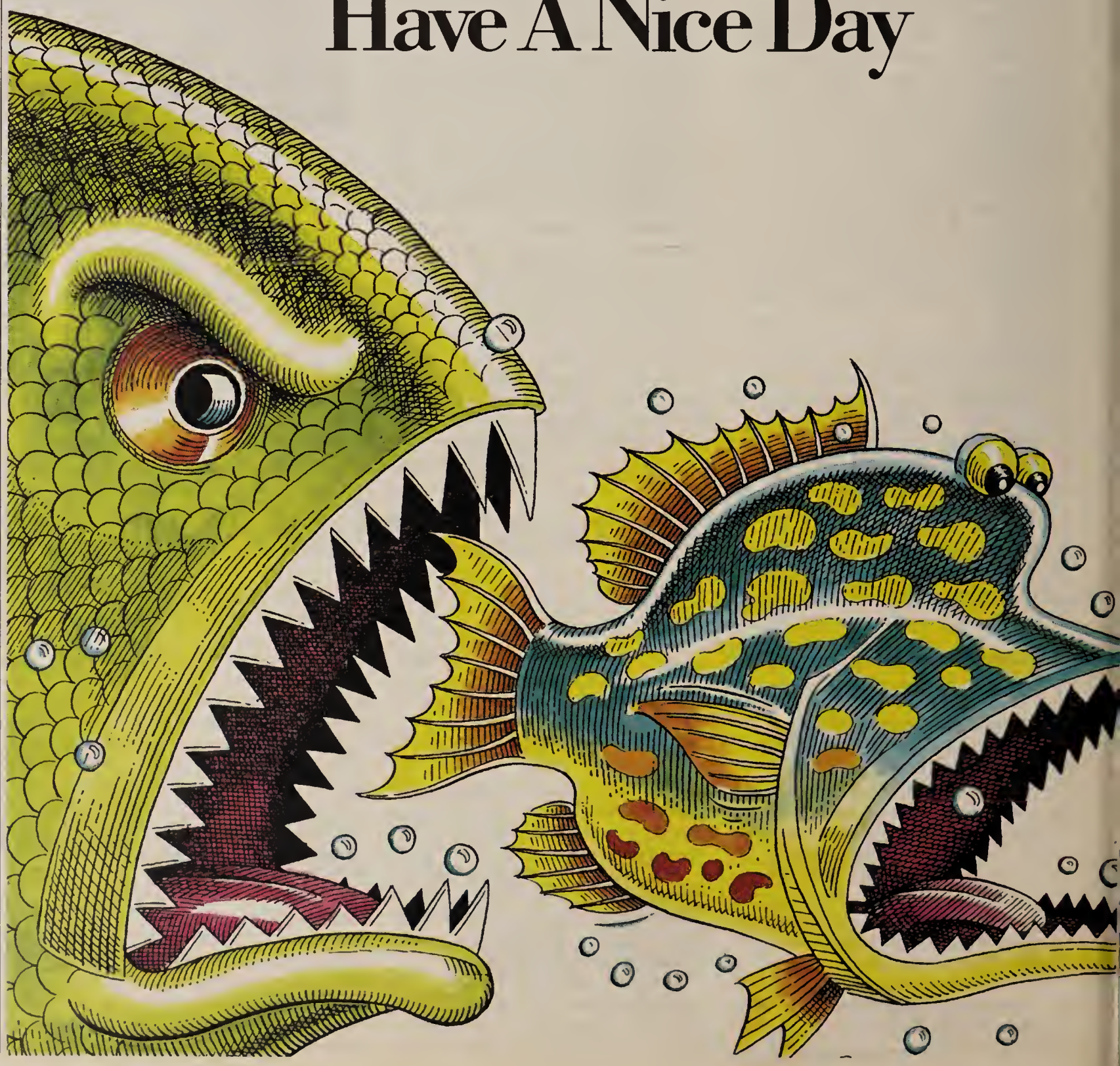

tems specialist, says the somewhat lower pay scale is not really an issue because "the benefits of working in Vermont and working at Ben & Jerry's far outweigh any benefits that I might get by working somewhere else," he says. "Plus, we can always run up to the freezer and get a pint [of ice cream]. Very often you can tell the level of stress by the number of pints open in the office."

Ben & Jerry's currently runs VAX-based Oracle Systems Corp. financial software and an in-house inventory control package developed with the Oracle database management system (see story on page 60). Approximately 60 terminals, 50 Apple Computer, Inc. Macintoshes and 50 IBM Personal Computer-compatible systems are in use, with more coming.

Keeping tabs on the activities of users is one way Williams helps to ease implementation of new systems. "I try to gather information about what's going on in the company so I can feed it to my department before it becomes a problem with what they're doing," Williams says.

Fran Rafke, the firm's chief financial officer, says that Williams does so in a way that doesn't put users on the defensive, "He knows he has to ask people a lot of questions because sometimes they don't realize it has a systems connotation," Rafke says. "He's aware of people's shortcomings in that area, and I don't think he ridicules people."

Keeping things pleasant is only part of Williams' style. It is important to him to give employees the freedom to do their jobs and push them to do a little more than they think they can, and the people he supervises seem to appreciate it.

"Working with Keith I have a lot of autonomy; in fact, the project that I'm working on is pretty much my baby," says Chris McClary, manager of systems development. "I came in, and he set the general direction for me and let me go."

Williams' future challenges include the development of a sales-order entry system and connecting a third plant and a distribution center, whose locations have yet to be determined, via leased lines — all moving toward Williams' goal for IS at the 13-year-old company. "I want everyone in this company to be able to sit down and get what they need to get done on their system," he says.

Lincoln S&L is outsourced

BY GARY H. ANTHES
CW STAFF

WASHINGTON, D.C. — Resolution Trust Corp. (RTC), the federal agency charged with resolving the savings & loan asset crisis, has outsourced the computer operations at Irvine, Calif.-based Lincoln Savings & Loan Association to Citicorp Information Resources, Inc.

Lincoln is the S&L for which five U.S. senators are alleged to have acted improperly on behalf of its previous owner, Charles Keating.

Citicorp will manage the thrift's two data centers, an IBM mainframe-based center in Irvine and a Unisys Corp. mainframe-based center in Santa Ana, Calif. The deal is worth $4 million over two years.

Approximately 20 people will be employed in computer operations, hardware maintenance and software development at the two sites, said Michael Harden, a regional sales manager at Stamford, Conn.-based Citicorp Information Resources. Some are Lincoln employees hired by Citicorp; others were provided by the computer services firm, he said.

All the right moves

Harden said Citicorp moved into Lincoln before a contract was signed. "It's important to move quickly because when [RTC takes over], key data processing people may start leaving right away, and data processing is the heart of the S&L's operation," he said.

Lincoln is the second S&L outsourcing deal won by Citicorp. Two months ago, Citicorp took over the data processing at Gibraltar Savings in Simi Valley, Calif. Gibraltar's deposits had been sold earlier by RTC to Security Pacific Corp., but that still left RTC with $4.5 billion in assets, including the data processing facilities that are needed to service the bank's loans.

Picking up the pieces

Failed S&Ls create a market with considerable, if short-lived, potential. Over the next six years, RTC must dispose of an estimated 600 failed thrifts with assets of $300 billion, more than the combined assets of General Motors Corp., IBM and AT&T.

Harden said Citicorp's chief competitors for the S&L work include Electronic Data Systems Corp., Fiserv, Inc. and Systematics, Inc.

"This [outsourcing] is in the formulation stage, but it's becoming more common," an RTC spokesman said. He added that outsourcing is more likely to be done for large thrifts but will be done for small ones when it is felt to be the most cost-effective way to operate the S&L while RTC seeks to unload it, he said.

John Sayre, a conservatorship specialist at RTC said, "Computer services companies are beginning to realize there's a market there. And as they market their services, our managing agents are increasingly likely to consider the outsourcing option. As they sell, we buy."

Lincoln is for sale, and a new owner could retain Citicorp or revert to in-house management, Harden said.

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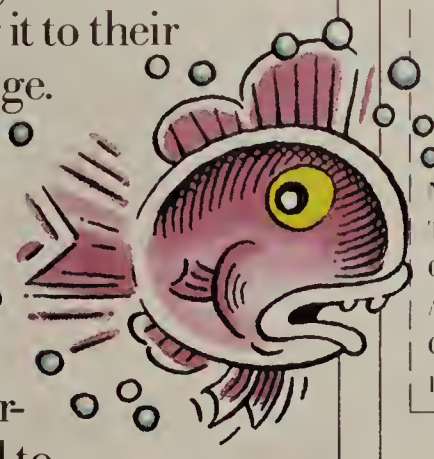

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1991 Editorial Calendar
(January-June)

Executive Reports	Issue Date	Ad Closings	
		Color	B/W
Maximizing the I/S Investment: Laying the Groundwork for New Architectures	Jan. 7	Dec. 20	Dec. 28
Taming the Unmanageable Network	Jan. 21	Jan. 4	Jan. 11
How I/S and Individual Business Units are Negotiating Project Priorities	Feb. 18	Feb. 1	Feb. 8
How Large Companies are Creating Data Standardization	Mar. 4	Feb. 15	Feb. 22
Maximizing the I/S Investment: Evaluating Advanced Technologies	Mar. 18	Mar. 1	Mar. 8
The I/S Role in Workforce Education	Apr. 15	Mar. 29	Apr. 5
View from the Top: How CEOs and CFOs Evaluate I/S	Apr. 29	Apr. 12	Apr. 19
Maximizing the I/S Investment: Data Center Efficiency	May 13	Apr. 26	May 3
Striking the Right Balance Between Centralization and Decentralization	June 17	May 31	June 7
Product Spotlights/Buyers' Scorecards			
High-end Modems	Jan. 14	Dec. 28	Jan. 4
Network Connectors - Gateways, Bridges and Routers *(Featuring Buyers' Scorecard)*	Jan. 28	Jan. 11	Jan. 18
Systems for Flexible Manufacturing	Feb. 11	Jan. 25	Feb. 1
Relational Databases *(Featuring Buyers' Scorecard)*	Feb. 25	Feb. 8	Feb. 15
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Sales Force Automation	Apr. 8	Mar. 22	Mar. 29
CASE Tools *(Featuring Buyers' Scorecard)*	Apr. 22	Apr. 5	Apr. 12
LAN Servers	May 6	Apr. 19	Apr. 26
Network Management *(Featuring Buyers' Scorecard)*	May 27	May 10	May 17
Minicomputers	June 10	May 24	May 31
Portables and Laptops *(Featuring Buyers' Scorecard)*	June 24	June 7	June 14
Integration Strategies			
Using Commercial Systems Integrators	Feb. 4	Jan. 18	Jan. 25
How Companies are Effectively Incorporating LANs into the Integration Strategy	Apr. 1	Mar. 15	Mar. 22
Strategic Integration of Databases	June 3	May 17	May 24
Industry Closeups			
Industry Closeup: Information Systems in Medical Care	Feb. 4	Jan. 18	Jan. 25
Industry Closeup: Information Systems in Transportation	Apr. 1	Mar. 15	Mar. 22
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Special Reports			
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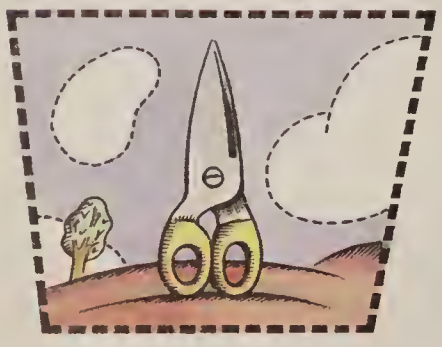

Tim Lewis

Summaries from leading scientific and management journals

"The new IS manager for the 1990s"

By Stewart Stokes Jr.

The Journal of Information Systems Management
Winter 1991

■ IS managers will face great challenges in the 1990s from several different areas. Within the corporation, there will be new pressure from downsizing, decentralization of IS functions and the ever-stronger emphasis on the bottom line. Externally, pressure will come from increased international competition, corporate takeovers and changing markets.

IS chiefs need new skills and attitudes for successful IS management in this decade. The requirements can be grouped into four categories: managing self; directing workers inside the IS unit; managing the relationship of IS to other units within the company; and understanding the goals and strategies of the business.

Managing self involves setting personal priorities and letting go of familiar roles to assume new responsibilities.

Managing inside and outside of the IS unit requires strong human relations skills; the IS manager must be able to motivate and develop the abilities of the IS staff as well as communicate clearly with managers of business units.

Understanding the "power points" within the company and networking with key personnel are necessary if IS is going to support the business effectively. IS managers must understand that business thrust so they can leverage technology for competitive advantage.

In addition to cultivating management skills, IS execs will need to maintain their technical knowledge. Effectively performing the day-to-day duties of the department while learning new skills will make the IS manager's job more difficult and time-consuming than ever before. Not every IS professional will be willing to make the necessary sacrifice to manage in the 1990s. — Derek Slater

"IS quality — What is it?"

By Pat Ragozzino

Journal of Systems Management
November 1990

■ Professionals of all kinds have turned their attention to quality, and information systems is no exception. IS quality, or lack thereof, has a direct effect on customers' perceptions of a company. In many cases, customers interact with the operational side of IS through such system-dependent functions as on-line tellers, patient scheduling, income tax refunding and the like.

IS must actively involve itself in organizing, managing and implementing a quality assurance function. IS-related quality means having systems in place that meet IS objectives and standards and that support the company's goals. The most effective quality technique, IS managers agree, is a structured training and education program for the IS staff.

The IS quality assurance function is still in its developmental stage. But a few things are certain:

- The quality assurance function can improve the quality of information systems.
- IS needs to market quality assurance to senior management and explain its objectives and benefits.
- Quality assurance professionals must market, define and create career guidelines for the quality assurance function within IS. — Lory Zottola

"Ways women lead"

By Judy Rosener

Harvard Business Review
November-December 1990

■ The first wave of women executives had to employ the same command-and-control leadership style that spelled success for men. But the second wave is succeeding by drawing on a set of nurturing or "interactive" skills that are generally considered to be feminine.

Women executives are more likely than men to have a leadership style that transforms subordinates' self-interest into a concern for the whole organization. They do this by encouraging participation, sharing power and information and getting others excited about their work.

Believing that people perform best when they feel good about themselves and their work, women executives work hard to contribute to those feelings.

Actually, some men use the same style of interactive leadership, and some women prefer the traditional style. Organizations should expand their definition of effective leadership to include a variety of personal styles, which would create a wider path for all sorts of managers — men and women — to attain positions of executive leadership. — Mitch Betts

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*Based on results of *Computerworld* Survey published July 16, 1990

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MAXIMIZING THE IS INVESTMENT

The best laid plans blend old and new

BY ALAN RADDING

Switching horses in midstream is a breeze compared with changing information or communications architectures without disturbing the normal flow of business.

As architectural changes go, Union Camp Corp. in Wayne, N.J., is not attempting a particularly tricky switch. The company is simply moving from a proprietary Hewlett-Packard Co. environment to open, Unix-based systems from the same vendor. Even so, John Ineson, director of information technology, is holding fast to one stabilizer: the companywide network.

"I don't care what we get or how it works, as long as it ties into the network. We have to maintain file sharing and interoperability," he declares, adding: "These are mission-critical areas. We can't lose functionality."

Between two worlds

Losing mission-critical functionality is the nightmare of every systems manager who contemplates a change of architecture. Downtime is not the only concern. There's also the fear that the organization may find itself mired between architectures, unable to move completely into the new world yet incapable of returning to where it was.

Successful architectural change requires more than just good timing. It also entails balancing current and future business requirements, the unknowns of technological change and budget realities. And, as most who have been through the process emphasize, it can only really work if there is a management-level consensus on what the company wants to achieve and how it wants to achieve it.

Sometimes, getting business managers to concentrate on the implications of major change can be difficult, however. Mitch Chaney knows this from experience. He has watched as his business managers allowed critical architecture decisions to happen by default.

Chaney, director of information systems at SKF Bearings Industries in King of Prussia, Pa., says he's been stymied by managerial indifference toward his efforts to fashion a truly useful systems architecture.

SKF's manufacturing and business systems evolved over the last 10 years with no clear direction, he says. Now, the company is faced with adopting the architecture of SKF's European-based parent company or developing one itself. The parent company "wants us to opt for their system, but if we go that route, we lose all flexibility and the ability to influence the system," Chaney explains.

SKF's business managers appeared ready to go along by default, seemingly uninterested in the implications of the decision — absolutely the wrong way to lay a groundwork for a new architecture.

Frustrated by this indifference to what he sees as a major change that could have a profound impact on business practices, Chaney has brought in a consulting firm, Nolan, Norton & Co. in Lexington, Mass., to explain the options and their implications to business managers.

Find a backer

Gaining support isn't always quite that hard. Gerry Long, vice president of systems development at Roadway Express, Inc. in Akron, Ohio, found he was able to turn his plans for a distributed architecture into action with the help of a single strong champion — the head of a major business unit.

It helped, Long says, that "information systems are a differentiator in the transportation business." In that situation, it wasn't very difficult to make the case that Roadway, a decentralized nationwide trucking company, needed something better than an old store-and-forward network with only limited message-switching and tracking capabilities.

As with any major move, one of the hardest parts of planning architectural change is figuring out what to discard and what to save. It is rare that a company can afford to make a clean and total break with the past.

Paul Ricker had that luxury at G. Hieleman Brewing Co. When Ricker, vice president of IS, arrived at the LaCrosse, Wis., company, he says he found virtually nothing worth salvaging.

"All the applications needed to be upgraded or replaced. The hardware had all the costs associated with big systems, and we were stuck with proprietary communications systems," he says.

Most IS executives can't just push all existing systems out

Continued on page 66

Reinhold Spiegler

Union Camp's Ineson *has only one rule when it comes to renovations: Anything new must coordinate with the network*

INSIDE

Taking out use insurance
Page 66

Staff readiness
Page 69

Radding is a free-lance writer based in Newton, Mass.

Continued from page 65

the door, however. More typically, they have to figure out how to reconcile future plans with current systems and operating requirements. Of course, that presupposes detailed knowledge not only of current equipment but also of current data paths.

A comprehensive survey of its computing landscape helped Seattle-based Boeing Computer Services, a division of The Boeing Co., identify both the totality of what was in use and the subset that was critical to preserve. Laurie Bride, manager of network architecture and standards, refers to the core applications that the company has determined must be kept functioning as "legacy systems."

Although Boeing has begun to prune the unruly collection of networks it uncovered in its survey — 17 proprietary network operating systems as well as a Transmission Control Protocol/Internet Protocol network — the policy is to leave the crucial legacy systems undisturbed until their replacement becomes a realistic possibility.

Federated keepsake

The must-keep element at Federated Mutual Insurance Co. in Owatonna, Minn., was the corporate mainframe database. The company was trying to move to cooperative processing, but "we'd been a Cincom Systems database user since 1973," says Gary Tobiason, director of information services. That precluded the use of new technologies such as SQL, because Cincom couldn't handle SQL at that time.

Hieleman Brewing's Ricker *found no old architecture worth salvaging*

"If we were to convert to something like SQL, we'd need a new database, and that would put all development on hold for five years. That wasn't an option for us," Tobiason says.

Fortunately, Tobiason found an application development tool, a programming language called Metaview from Metafile Information Systems, Inc. in Rochester, Minn. The product allowed the company to preserve its corporate database while rolling out a personal computer-based cooperative processing architecture. It also, by virtue of its support for image processing, gave Federated a head start in a direction that, even in 1985, the company was fairly certain it would want to pursue.

While preservation of certain parts of the present is often critical, care must also be taken to safeguard the future. And that means both establishing and enforcing standards.

Basically, says Randy Olson, a systems associate for telecommunications development at Kingsport, Tenn.-based Eastman Chemical Co., users can have any technology they want, as long as it

Continued on page 68

Testing the elements

Once an architecture has been established in concept, there is still the task of filling it in with specific products and technologies. The architecture itself "is a high-level blueprint that indicates only goals," says David Sluyter, research analyst at Liberty Mutual Insurance Co. in Boston.

Sluyter's advanced technology research group investigates specific technologies using a newly introduced four-step model composed of initial investigation, focused research, prototyping and implementation and product rollout. This model replaces "a shotgun approach" by which Sluyter's group looked at virtually every technology that came down the pipe, he explains.

After Liberty Mutual abandoned its IBM architecture for open systems last year, Sluyter's group found it needed a more logical and targeted approach to keep up with the work of locating the right enabling technologies.

The initial investigation assesses a technology in terms of its applicability to the company's stated directions. Only if a technology seems like a match does the group proceed into focused research — running benchmarks and identifying benefits and problems.

According to Sluyter, the goal of the prototyping stage is to "educate ourselves in the potential of the new technology and to understand the infrastructure needed to support it."

No technology has yet reached the final step — development of a business product. Sluyter estimates that journey will take six months.

ALAN RADDING

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EXECUTIVE REPORT

Avoiding organizational rejection

Make change more acceptable: Reality-test those plans

Implanting new architectures within organizations is delicate work. If you forget there are real humans on the receiving end, you will likely trigger what James Hatch, manager of financial investment strategy at Aetna Life and Casualty Co. in Hartford, Conn., calls "the organizational immune system."

The key to avoiding rejection, Hatch says, is figuring out how people really use the systems and then devising ways to minimize traumatic changes. That may sound simple, but Hatch can testify to the fact that it is not.

What makes it hard, he says, is that much of what systems architects are told about the way users work is just plain wrong. "People don't use the systems the formal way, the way the managers and supervisors say they do," Hatch says. They improvise, he adds.

The only real way to map these improvisational patterns is through close-up contact and careful observation. Hatch manages this by selecting sites from which he can elicit direct user input and watch how users employ systems.

In one instance, when he was trying to plan implementation of a distributed system for field offices, Hatch actually recreated a working field office at headquarters through which he regularly walked users from the pilot sites to get continuous feedback on system design. "You'd better keep the users informed on a steady basis rather than spring the system on them fully formed," he says.

Once Hatch knows which procedures are most critical to users, he devises a plan for insulating these tasks from direct contact with the underlying mechanics of the system.

By creating a buffer between the users and the technology, Hatch, in effect, divorces the applications from those elements that are subject to technological change.

When switching to a relational database structure for mutual fund operations, Hatch's group created a buffer that eliminated the need to alter applications every time fund products were added or changed. "You want your architectural model to minimize the impact of change," he says. "It adds a layer of overhead, but it saves you from having to revise all the programs."

ALAN RADDING

Continued from page 66

complies with the standards that are specified in the architecture.

At Eastman Chemical, the proposed new standard for the communications architecture is Open Systems Interconnect, but declaring a standard architecture is easier said than done. Like Boeing, the 11,000 Eastman Chemical employees use a variety of systems involving a host of proprietary standards. And getting business managers to recognize the need for

Boeing's Bride *says some systems are legacies that must be preserved*

change and to change their purchasing habits is a slow process. "One thing they want to know is, who's going to pay," Olson says.

How far? How fast? How much? Who is going to pay? These are questions frequently thrown at IS managers when architectural change is in the air.

Little by little

Slow and easy is the best answer to all those questions, according to many IS executives. "We're phasing in the new systems one at a time, says Gary Hayes, manager of corporate IS at Haarman & Reimer, a manufacturer based in Springfield, N.J. Haarman & Reimer is converting to a new business software environment as a result of a corporate restructuring. The new system is a comprehensive, integrated, off-the-shelf business package that replaces an obsolete existing package and an aging homegrown system.

Rather than trying for wholesale change, Hayes will build interfaces for the existing applications to the new financial system. "Down the road, we'll add other modules, but we decided to take it step by step," he explains. Trying for a complete changeover "would take a lot more resources than we have," he says, "and because we had two systems as our base, there would be more organizational problems than we could handle." •

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Maintaining staff readiness

BY MARY LOU ROBERTS

The difficulty of acclimating systems staffs to new technologies is often underestimated. Madeline Weiss, president of Weiss Associates, Inc., a Bethesda, Md., consulting firm that specializes in organizational and management issues, says, "People often think that learning to use a new technology is like learning to use a toaster. But in fact, it's a lot more like learning to play a musical instrument."

Wayne Garner, manager of technology development at Dow Chemical Co. in Midland, Mich., reaches for a different analogy. To him, he says, the process "is something like black magic."

Although there are no formulas that will work across the board in all situations, companies such as Dow Chemical that are in a constant state of technology advancement are working hard to make the learning curve an easier climb.

Getting the staff involved in the change process as early as possible is extremely important, according to most information systems managers and consultants. Dave Shinkfield, vice president at PA Consulting Group in Heightstown, N.J., cautions that there is a very real difference between information sharing and accommodation, however. Involving staff in this kind of situation, he says, "doesn't mean as much asking for advice as it does communicating well."

Building the staff

On the whole, Weiss says, practicality will make the majority willing, if not eager, to learn new skills. "Most systems professionals realize that the name of the game today isn't employment security — it's employability," she says.

Still, because it is a given that individuals will react differently to change, it's important that IS management pay more attention than ever to the makeup and philosophy of its organization.

Howard Ludwig, manager of technical development and services at Inland Steel Co. in East Chicago, Ind., notes that when his company hires, "we look specifically for people who are excited by new technology." In addition, he makes a point of rotating IS professionals into new areas roughly every two years.

Other firms promote learning through example. Ludwig describes his company's strategy as "ramping up people through technology transfer." What this means, he explains, is that "we bring in new technology knowledge through the use of outside consultants, and we let them help us bring people up to speed."

Polaroid Corp. also believes in learning through example, but its translation of that concept is a little different. According to Al Hyland, director of worldwide systems at the Waltham, Mass.-based firm, the systems department frequently takes field trips to other firms using technologies it plans to adopt.

Polaroid's Hyland *takes his systems department on educational field trips*

Try it — you'll like it

Another technique that can ease the transition to a new technology platform is the use of pilot programs to gradually introduce systems staff members and users to the new technology. Dow's Garner says his company uses pilots as a way of building acceptance for new technologies.

Naturally, formal training and education is an important component of the staff synchronization and technology transfer process. This process can require significant investments from both company and staff.

Weiss offers the example of one of her clients, S. C. Johnson and Son, Inc. in Racine, Wis., which has a firm policy of retaining existing personnel. When the company moved from a Bull HN Information Systems, Inc. platform to an IBM mainframe environment, systems personnel were told they would be expected to spend 150 hours per year on company-sponsored education — with only half of that occurring on company time. The company created an automated skills inventory program that matched skills of the employees with skills needed for the new environment.

IS staff members aren't the only ones in need of re-education when large-scale changes are made to the technical environment. "It's important to educate at both the systems staff and the systems management level," Hyland says. •

Roberts is a free-lance writer and consultant in Glenside, Pa.

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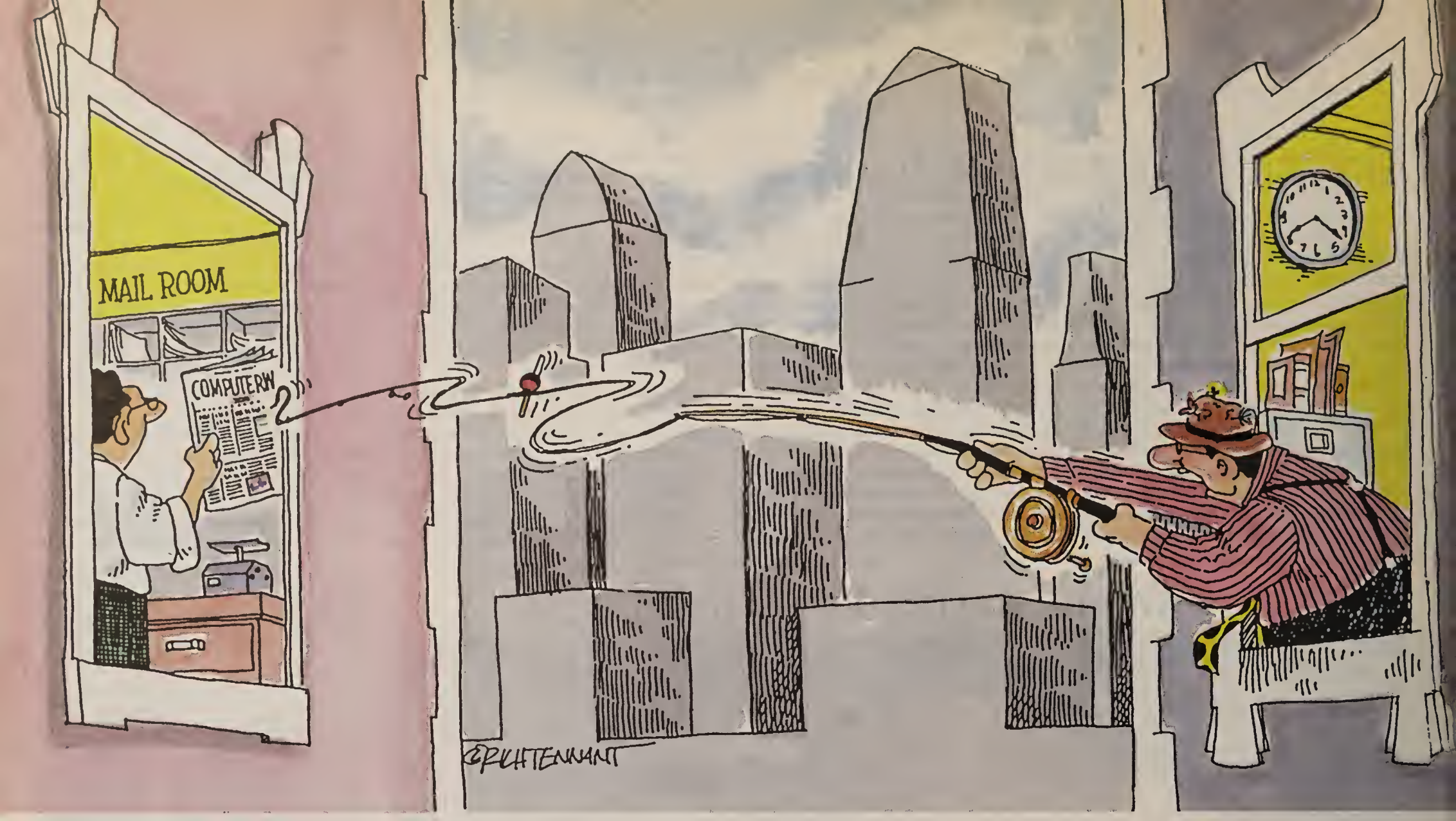

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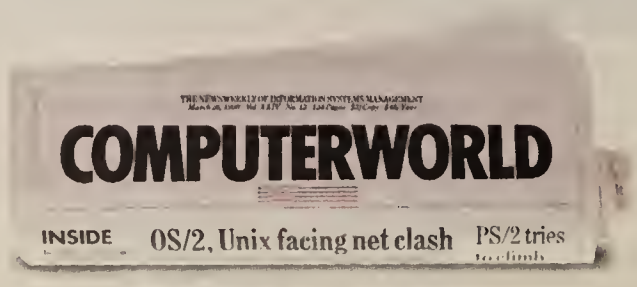

The Newsweekly of Information Systems Management

IN DEPTH

A directory of 1990 In Depth articles

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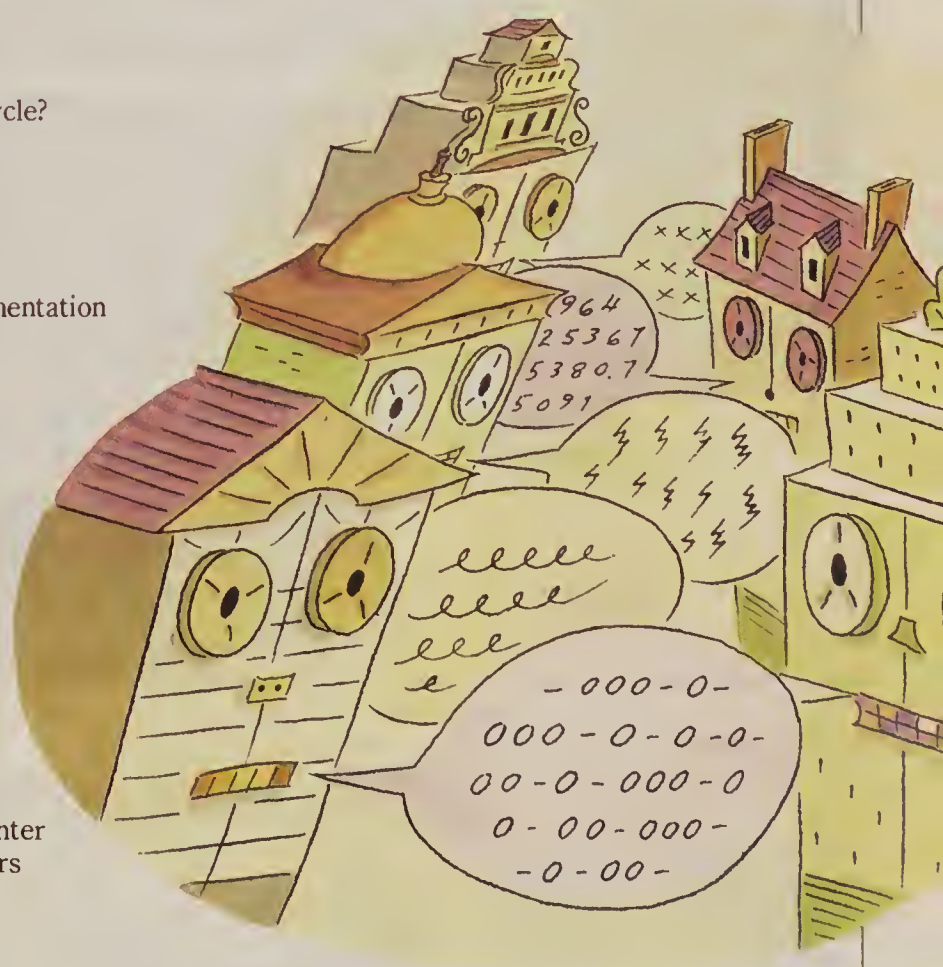

Michael Klein

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Nous ne sommes pas for sale

Dispatching months' worth of rumors to the contrary, **Datapoint Corp.** Chairman **Asher B. Edelman** definitively told shareholders that the firm is not for sale at the present time. In fact, Edelman said, Datapoint is on the move — to France, where headquarters, now in San Antonio, will be re-established as part of a plan to reinvigorate the computer manufacturer by placing resources closer to customers. Datapoint, which will retain its U.S. corporate citizenship and its New York Stock Exchange listing, currently draws some 80% of its revenue from Europe.

Holiday shopping

It didn't all happen at the mall: Sarasota, Fla.-based time-control software vendor Techtime, for instance, spent the holiday season announcing planned expansions. The firm signed a letter of intent to acquire Atlanta-based Tridata Systems, Inc., a privately owned company specializing in time-control systems tailored to the hospitality industry. Techtime is also poised to buy research and development firm Uniquest, Inc. in an acquisition that contemplates Uniquest's current owner making a cash investment in Techtime and becoming a part of the combined firm's management team.

Fuller disclosure

In an attempt to tighten the focus on its core businesses — engineering and consulting — **Bechtel Corp.** last month agreed to sell off its information systems subsidiary. Gaithersburg, Md.-based **Bechtel Information Services, Inc.**, a subcontractor on the Securities and Exchange Commission's Electronic Data Gathering Analysis and Retrieval, or Edgar, project, will be acquired by Bethesda, Md.-based corporate information and research firm **Disclosure, Inc.**

Imagen's Olson dies

Robert Olson, president of document printing systems vendor Imagen Corp., died last month after a lengthy illness. Olson, 56, was a retired board member of QMS, Inc., the parent company of Santa Clara, Calif.-based Imagen. He had previously served as chief executive officer of the Allied Linotype Group.

BBN makes comeback in 1990

After some improvement in 1990, BBN looks to re-establish itself in 1991

BY JOANIE M. WEXLER
CW STAFF

CAMBRIDGE, Mass. — Long typecast as a government contractor, BBN Communications — a division of research and engineering company Bolt Beranek and Newman, Inc. — is endeavoring to polish its image as a commercial management networking player.

The publicly held, 42-year-old Bolt Beranek and Newman is back in the black after a couple of years of financial blows dealt by curtailed government spending, an underbid contract between BBN Communications and Japan Airlines, an $18 million purchase-gone-awry of Network Switching Systems, Inc. in 1987 and other factors.

The company's financial situation resulted in a personnel reduction last year — from 3,000 to 2,500 employees worldwide — through layoffs and attrition.

For its fourth fiscal quarter ended June 30, however, the parent company wiped the red ink from its balance sheet (see box page 74). Goldman Sachs & Co. securities analyst Mary Henry estimated that while the BBN Communications division lost money in its most recent fiscal quarter, it should break even or make money in its quarter ended in December.

To continue its upward financial trend, BBN Communications plans to leverage what has historically been acknowledged as top-notch data communications technology into commercial products that will address looming user demand for more efficient use of bandwidth.

The demand is being driven by burgeoning data-intensive applications, the trend toward local-area interconnection across wide geographical areas and emerging imaging and video applications.

The firm described its strategy as "linking yesterday's, today's and tomorrow's devices," said Jeffrey H. Palmer, BBN Communications' vice president of marketing and planning.

Toward that end, the firm's X.25 packet switches have been designed to accept and convert traffic speaking a broad array of protocols. BBN Communications has also announced intentions to support a trunk-side frame-relay interface on its T/300 packet-switching node during first-quarter 1991. It has also said it will have cell-relay products available in the first half of 1992.

BBN Communications is also addressing the local-area network interconnect market by reselling a router manufactured by Wellfleet Communications Co.

Analysts said the strategies are sound but could also leave BBN little room for technological or logistical errors as the market heats up. Frame-relay and cell-relay transport mechanisms fall under the umbrella of fast-packet technology, one of the myriad technologies surfacing to address users' burgeoning bandwidth requirements.

BBN Communications has pledged to jump on the fast-packet bandwagon and develop new marketing and distribution schemes that will shift the company's "think tank" reputation to that of a viable commercial vendor.

In this particular case, perception could be everything for the company's success.

"We feel the company has not fully matured on the commerical side in recognizing the difference between servicing commercial and government accounts," said Mark Raisch, manager of international telecommunications and network technology at Bank of New York, a user of BBN Communications' packet-switching products since 1987.

"BBN's equipment is rock solid once it is installed. However, the company approaches each project as though it's the very first time, which drags out implementation."

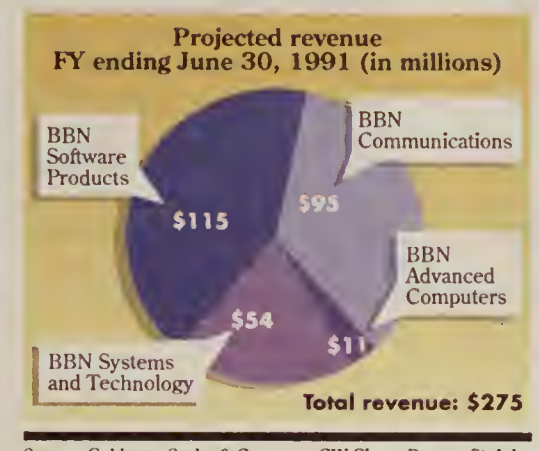
Palmer noted that his firm's commercial customers — which also include Barclays Bank PLC, Mastercard International and Wang Network Services — actually outnumber those in the government sector. However, he acknowledged, the government contracts are substantially larger and thus account for more of the firm's revenue.

Frame and cell relay represent the "next wave" of packet switching, a type of store-and-forward switching in which data is broken up into small packets that are dispersed throughout a circuit where there are chunks of

Continued on page 74

Adding to the success

As a hefty contributor to parent Bolt Beranek and Newman's revenue base, BBN Communications' ability to turn the corner on profitability would benefit the whole business



Source: Goldman, Sachs & Co. CW Chart: Doreen St. John

Leasing game changing, survey says

BY NELL MARGOLIS
CW STAFF

If the 1990 edition of the Gartner Group, Inc.'s annual survey of the U.S computer leasing industry is any indication, dealers and lessors are entering 1991 with characteristic optimism and a rallying cry: The less Blue we are, the less blue we are going to be.

"We've been focusing on diversification as one of the most important issues for computer leasing companies, and the results of this survey tell us we've been right," said Kenneth A. Bouldin, chief executive officer of the 370-member Computer Dealers and Lessors Association (CDLA), which commissions and responds to the Gartner Group survey each year. IBM equipment accounted for 71% of overall computer leasing volume in 1989, down sharply from 82% in 1987 and a continued drop-off from 74% in 1989, according to the survey.

Both Gartner Group and the CDLA expect that number to continue decreasing as third-party leasing companies — faced with a domestic economy on the wane and IBM captive leasing firm IBM Credit Corp. on the rise — scramble to deal in other vendors' hardware. Gartner Group projects IBM's share of equipment leased by survey respondents at 67% for 1990 and falling. The list of gainers from lessor diversification, the report said, will likely include Amdahl Corp., Hitachi Data Systems Corp., Digital Equipment Corp. and AT&T.

Computer leasing and remarketing volume rose 7.5% in 1989, according to the survey. Data compiled by Gartner Group showed the industry growing from $20 billion in 1988 to $21.5 billion in 1989, with $25 billion projected for 1990.

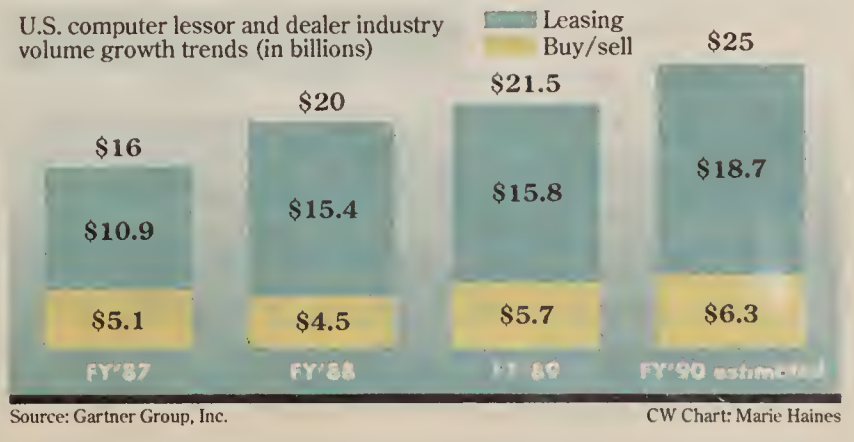
"The CDLA was certainly disappointed with the growth figure, which was only about half of what we predicted," Bouldin said. Nevertheless, he noted that leasing firms showed marked optimism, predicting 19% growth for 1990. Gartner Group analysts came in at a more conservative 10% to 15%. The 1990 figure projected by the firm reflects an average of the two.

Portfolios as well as vendor diversification showed up in the survey. Large systems accounted for 34% of equipment volume in 1988; the figure was down to 33% in 1989, with a continued decline to 32% predicted for 1990. Midrange systems leasing and trading jumped from 12% in 1988 to 17% in 1989; workstation deals climbed from 9% in 1988 to 10% in 1989.

IBM's policies and practices topped the list of leasing industry concerns for the third year running, followed by overall competition.

High stepping into new year

A $3.5 billion boost in revenues over the past year has most lessors smiling



Source: Gartner Group, Inc. CW Chart: Marie Haines

Fast-packet players

Despite its new persona, BBN Communications is not the only fast-packet act in town. Firms are continually tossing their hats into the fast-packet ring with announcements and occasional product rollouts.

Fast-packet pioneer Stratacom, for example, offers a frame-relay interface and cell-relay transport mechanism on its IPX T1 multiplexer line. Codex Corp., which owns a 20% equity investment in Stratacom, is slated to start shipping the IPX as the Codex 6290 fast-packet backbone during the first quarter of this year.

The specifications for the companies' frame-relay interfaces match those of router vendor Cisco Systems, Inc., whose products work in tandem with the Stratacom offering on the customer premises side of a network.

Stratacom's and Cisco's products conform to a set of specifications that the two companies, along with Digital Equipment Corp. and Northern Telecom, Inc. set in September. In addition, Timeplex, Inc. recently started marketing its Fastpath cell-relay line, which it acquired this past fall when it purchased Doelz, Inc.

The products from the "group of four" will not necessarily adhere to standards currently under construction by the CCITT. "All the current offerings are narrowband, proprietary devices," said Nick Lippis, principal consultant at Northeast Consulting Resources, Inc. in Boston. "BBN [Communications] is developing a next-generation backbone that could displace the T1 multiplexer."

BBN Communications cited as its competitors the triumvirate of Stratacom, Cisco and U.S. Sprint Communications Co. Sprint has committed to public-cell switching by the end of 1991.

JOANIE M. WEXLER

BBN

FROM PAGE 73

available bandwidth. The data packets are then reassembled at the receiving end.

Like traditional X.25 packet-switching — a standard that was actually developed by BBN Communications in the late 1960s — fast-packet technologies make more efficient use of bandwidth than circuit switching, a technique that nails up dedicated channels within a circuit to await traffic for transmission. Packet switching is more efficient because dedicated circuits often sit idle during nonpeak communications periods.

Frame and cell relays are faster than today's standard X.25 packet switching because they capitalize on today's highly reliable digital communications lines by eliminating error checking and recovery at every node throughout the network.

Frame relay breaks data into packets of variable length. Cell relay uses a fixed length, making it more suitable than frame relay for sending traffic that cannot tolerate unpredictable delays such as voice.

The company's target rollout time frames will hit fertile market conditions, analysts said.

"The T1 market is starting to break up, with data traffic increasing 35% annually," noted Nick Lippis, a principal consultant at Northeast Consulting Resources, Inc. in Boston. "It will take about 18 months for companies to realize they should start dismantling their T1 backbones, so their time frame is right on the mark."

However, Rosemary Cochran, principal at Vertical Systems Group in Dedham, Mass., cautioned that "the company will have to stick to that time frame. The window will close if they slip a year or two. Like the T1 market, once you secure an account, it's yours; the first vendors to market will do best."

Palmer said that, ultimately, the company's cell-relay line will "support a mix of services," but that it has not yet committed to anything but data support in the

Indelible black ink?

Slashing operating expenses has helped put BBN back on its financial track, but analysts said new marketing and distribution tactics will be key for continued success.

First quarter ended Sept. 30, 1990
Net income of $5.19 million on sales of $62.59 million

First quarter ended Sept. 30, 1989
Net loss of $3.14 million on sales of $64.15 million

Fourth quarter ended June 30, 1990
Net income of $3.82 million on sales of $69.28 million

Fourth quarter ended June 30, 1989
Net loss of $22.74 million on sales of $71.92 million

Year ended June 30, 1990
Net loss of $34.8 million on sales of $261.93 million

Year ended June 30, 1989
Net loss of $25.13 million on sales of $291.57 million

Third quarter ended March 31, 1990
Net loss of $32.37 million on sales of $64.89 million

Third quarter ended March 31, 1989
Net loss of $5.18 million on sales of $74.46 million

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It's a bridge box here. A router box there. A brouter box here.

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first release of its cell-relay product line.

Richard Malone, another Vertical principal, said he is worried about BBN Communications' noncommittal attitude toward supporting voice in the first release and its refusal to include circuit-switching products in its equipment array.

"BBN must address all forms of traffic in the first release — not just the traffic they're comfortable with [data]," he asserted. "Their job is going to be to convince companies that they can serve as an enterprise vendor. Many companies are moving back to the public carriers for voice and video services; if BBN doesn't support those services, it can't seriously be considered an enterprise player."

Palmer said his company is leveraging its strength in mission-critical installations and is banking on the philosophy that "all companies' networks will be mission-critical" in the near future.

He said that BBN Communications considers its historical data communications emphasis a strength because emerging imaging, video and LAN internetworking applications mean that data communications is where the projected growth spikes are.

Firm selects DEC's management base

It almost goes without saying these days that companies in the networking business cannot ignore the issue of network management in their product lines.

BBN Communications' strategy to target mission-critical, wide-area networks includes support of Digital Equipment Corp.'s Enterprise Management Architecture (EMA), a framework for managing heterogeneous distributed computing environments. BBN Communications intends to "add value" to the platform, rather than just supply hooks into it from lower level network management systems, according to Jeffrey H. Palmer, vice president of marketing and planning at BBN Communications in Cambridge, Mass.

Palmer said his company will provide EMA-compatible tools to enhance DEC's Open Systems Interconnect-based core. For example, BBN Communications will bring performance monitoring to identify bottlenecks in sessions to the EMA table, he said.

Palmer added that he believes BBN Communications is DEC's first partner "to build on top of EMA instead of just linking into it." He said BBN chose DEC's EMA "because DEC is out in front with its core database and application programming interface."

He acknowledged that DEC lags behind its enterprise network management competitors — including IBM with its Netview and AT&T with its Accumaster Integrator — in providing an impressive graphical user interface.

"DEC has sweated on the most important details — it just doesn't look as good at trade shows," Palmer remarked.

JOANIE M. WEXLER

IBM, British Telecom venture may be planned

BY RALPH BANCROFT
IDG NEWS SERVICE

LONDON — IBM's unprecedented decision to move the headquarters of its communications business to London may be a signal for an even more audacious move in the global telecommunications market.

According to reports in the British financial press, IBM and British Telecom PLC are close to announcing a joint venture that will offer a global value-added data network service offering functions ranging from electronic mail to electronic data interchange.

Familiar path

This is not the first time the two companies have discussed a joint data network. British Telecom and IBM announced such a network for the UK in 1984, only to have the plans nixed by the British government on antitrust grounds following protests and complaints from competitors.

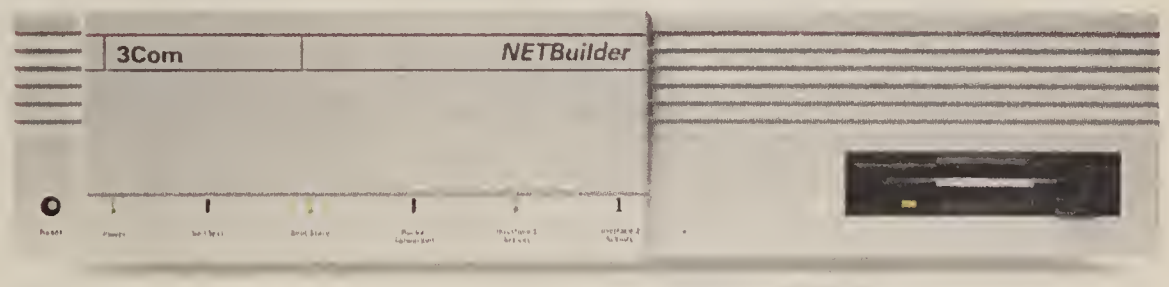
However, a global data network may escape such scrutiny because of its worldwide scope and the fact that the venture would increase competition by pitting the two companies against the data networks provided by monopolistic national telecommunications organizations.

The planned alliance, which has reportedly been under discussion for two years, would see British Telecom take over the management of IBM's internal communications network and link it with BT Tymnet, Inc., the international data network that British Telecom acquired from McDonnell Douglas Computer Systems Co. last year. BT Tymnet is well established in the U.S. and Europe.

IBM would take responsibility for supplying the information services and the software for the network. When the regulatory climate allows, cooperation between the two companies will be expanded to provide international voice communications.

Bancroft is an IDG News Service correspondent based in London.

Ch Changes.



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INTERNATIONAL
BRIEFS

Everybody's in tech business, too

Osaka, Japan-based **Matsushita Electric Industrial Co.**, which recently riveted the attention of U.S. stargazers by pulling off the largest purchase of a Hollywood studio to date, returned to its more traditional turf late last month with an announcement of plans to establish a computer software and graphics development laboratory in Princeton, N.J. The nascent **Matsushita Information Technology Laboratory**, to be headed by former Princetonian **Richard Lipton**, will be the Japanese firm's eighth such endeavor. Maybe its birth isn't unrelated to the Matsushita/MCA deal after all: The lab, according to the firm, will focus on technological advances that are likely to be applied in new film production.

No-confidence vote

The Swedish public sector has little faith in most of its computer suppliers, according to a study of 219 information systems directors released late last month by Stockholm-based market research firm **IMU-Testologen**. Least confidence-inspiring among the major vendors, the study said, are **Wang Laboratories, Inc.**, **Commodore International** and Norway's **Norsk Data.** Only 30% of the users surveyed reported having any faith in Wang; none said they were confident. Commodore pulled a 33% faith rating but also inspired no confidence. Forty percent of the users said they had faith in Norsk Data, but again, none were willing to go as far as being "confident."

And now, Far Southwestern Bell

An international consortium of subsidiaries of St. Louis-based **Southwestern Bell** and **France Telecom**, as well as Mexican multi-industrial entrepreneur **Carlos Slim**, bid roughly $2 billion late last month for a control stake in **Telefonos de Mexico.** The privitization of Mexico's telephone company, said Southwestern Bell Chief Executive Officer Ed Whitacre, "puts us one step closer to increased economic and cultural exchange between our nations." Oui. Si. Right.

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Eric Butlein
Principal
Computer People Unlimited, Inc.

Richard Weiss
Principal
Computer People Unlimited, Inc.

The largest software services consulting firm in Wisconsin, Computer People Unlimited, Inc. (CPU) is also listed in *Inc.* magazine as one of the fastest growing privately held companies in America. Together, its Milwaukee headquarters and branch offices in Appleton and Madison employ more than 250 professionals. During 1989 alone, Principals Eric Butlein and Richard Weiss saw the firm hire 98 new consultants. To keep pace with its rapid expansion and maintain its low employee turnover, CPU implements a rigorous recruitment program to hire the right professionals for every position.

Richard Weiss

"We need to recruit people through what they're reading, and Computerworld *is the most widely read weekly among computer professionals. Primarily we're looking for consultants — programmers, software engineers, and computer scientists with expertise in software development. About half of our consulting entails writing software programs for business, and a full 25% is dedicated to the area of scientific/engineering programming. Another 25% is comprised of technical services, technical writing, and end-user computing, as well as artificial intelligence, and especially expert systems. Recruiting consultants with specialized skills in these specialized markets is where* Computerworld *helps us the most.*

"The talent we need to service all our clients — in banking/finance, insurance, manufacturing, medical technology, utilities, retail, high-tech, and state/local government — isn't always available locally. Also, CPU's policy is not to hire from customers. So it's essential that we look for professionals from outside of Wisconsin. In fact, roughly 80% of the consultants we hire in the scientific/engineering area, as well as up to 30% of our business consultants, come from out of state. Here, the nationwide exposure we get with Computerworld *is crucial to our recruitment efforts.*

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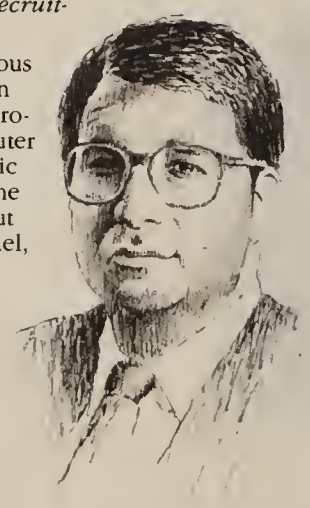

Eric Butlein

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REPORTER'S NOTEBOOK
A conference of partners

BURLINGAME, Calif. — The Technologic Partners' semiannual gathering of the tribes last month drew a number of salty and frank comments.

Some of the choicer comments included the following:

■ Apple Computer, Inc. Chief Executive Officer John Sculley predicted that the firm's trio of new low-cost Macintoshes will help Apple continue to grow at a 10% annual rate. Sculley said Apple will more aggressively pursue new technological frontiers. "We clearly missed the boat in the laptop market, but we won't miss the notebook market and the handheld market," he said.

■ While attendees munched broccoli and carved chicken, Sun Microsystems, Inc. President Scott McNealy let zingers go at the rest of the industry. McNealy seemed distressed about AT&T's potential takeover of NCR Corp. He compared it with the merger of Sperry Corp. and Burroughs Corp. to create Unisys Corp., which used "The Power of Two" as its motto. "They proved the power of two, all right," he said. "That's their stock price right now."

■ One panel discussed ways to attract new users to the industry and essentially agreed on the KISS (keep it simple, stupid) theory. "How many people in this room even know how to use their VCR?" asked Adobe Systems, Inc. President John Warnock. "We can't add more features [to personal computers] because people can't even use the darn things now." Until the problem of complicated machines is solved, Warnock added, large market growth is unlikely.

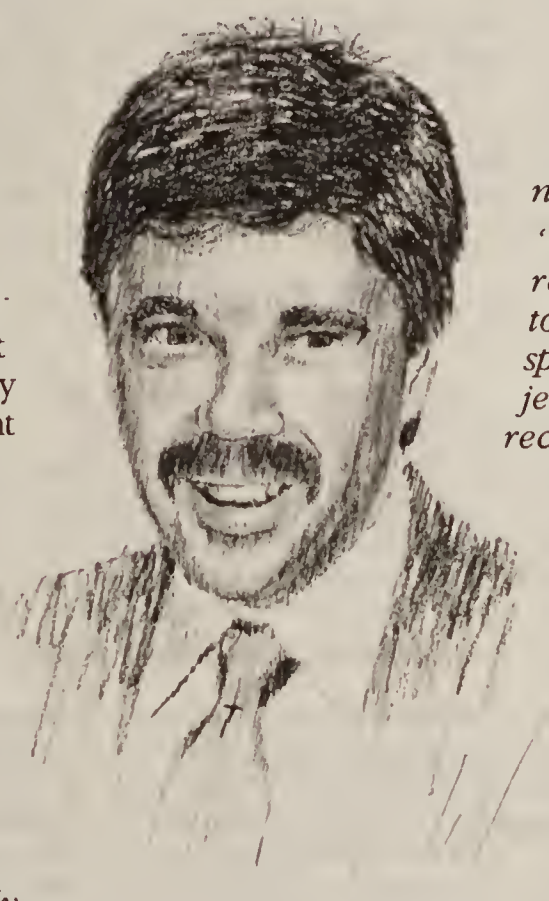
■ AT&T's Bob Kavner said the company is working on a stripped-down version of Unix that will require as little as 4M bytes of random-access memory and a 40M-byte disk. "Unix Lite" will take out all the extraneous enhancements to Unix and make them available as add-on packages, he said.

■ Debates raged over whether the emerging pen-based computer market will need to forge its own operating system or whether it can adopt an established one such as DOS. Microsoft Vice President Mike Maples declared the market would need to rely on "standards" to get things done. Said Jerry Kaplan, president of Go Corp., which is pushing its own operating system for pen-based computers: "What standards? There are no standards with pen-based computers. It's an open playing field."

JAMES DALY

"Based on our response rate, *Computerworld* outperforms other recruitment sources three to one."

— Richard W. O'Donnell
General Manager
Contract Solutions, Inc.



Contract Solutions, Inc., a Software and Data Processing consulting firm in Salem, New Hampshire, services government and commercial clients. The ten year old firm has established a loyal regional client base. Many of Contract Solutions clients rely exclusively on the firm to supply the talent needed for their projects. Richard O'Donnell, General Manager, wants to build upon his firm's regional success and replicate it nationally. *Computerworld* is a key element in his plans.

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Job hoppers lose their bounce

'Fast track' is a monthly column dedicated to answering questions on career directions.

BY MAX MESSMER
SPECIAL TO CW

I've been trying to find a position as a project leader for nearly a year. I have a master's degree in computer science, five years of project management experience at a well-known West Coast bank, and I've been developing applications using the C language and relational database software for several years. Based on my experience, I expected to find a new job (and a healthy raise) within a couple of months. Instead, the offers I've received so far have not even matched what I'm earning today. I know the economy is slowing down, but am I just having a spell of bad luck, or are things going to continue like this?

During the last 10 years, information systems people have usually changed jobs for significant, rather than ordinary, increases in pay. Recently, in some parts of the country and in some specialties, the earnings increases haven't been nearly as dramatic. In all likelihood, this situation will continue until the economy starts growing again.

During an economic downturn, the publicity about layoffs and cutbacks often means people are more inclined to stay in their current jobs than to look for new positions and higher pay. For some people, that's the right thing to do. An employees is often less likely to get caught in a cutback if he has some seniority and is performing well than if he is the new person in a department.

Your skills in relational database software and C language are still in demand, particularly if you're familiar with Microsoft Corp.'s Windows and the hotter database management system products from Oracle Systems Corp. and Sybase, Inc. A new position and increased earnings are not out of the question, but you'll need to be selective, and you may have to spend more time on your search.

I am a systems analyst with a background in distributed processing systems. I was recently contacted about a position with a group that is using the RPG III programming language on IBM Application System/400s. I've always considered RPG environments out of the mainstream of IS, and I'm wondering why I am now reading about the demand for people in this area. If I were to make this move, would I be less marketable than I am today?

For a long time, RPG shops were somewhat outside of the IS mainstream. Most RPG programming was done for smaller organizations, while the larger ones stuck with Cobol and Fortran. That has begun to change radically since the introduction of IBM's AS/400, which uses RPG III as its principal applications development language.

FAST TRACK
CAREER ADVICE FOR THE '90s

A large portion of the AS/400s are going into big companies that are adding to and/or replacing centralized systems with distributed processors. Most of the applications for these new systems have to be written in RPG III, and that means RPG III experts are some of the most sought after technical people in IS right now and should continue to be in demand for several years to come.

Naturally, you should consider more than just the technical area you'd be in if you join this group. Before you make a decision, you should think about the chemistry with your prospective boss, the stability of the organization, the compensation package, whether the project is technically interesting and whether there is career development.

The sum of all these considerations may or may not mean this is the right position for you, but AS/400 experience would definitely be a career asset to you in the future.

I am a programmer/analyst with five years of mainframe financial applications experience, and I plan to remain on the technical side of the business. I was recently offered a position in a group that is developing real-time manufacturing applications. The salary the company is offering me is a major increase. However, I work for a money-center bank in a major metropolitan area right now, and I don't know much about manufacturing. How might this job affect my marketability in the future?

Real-time manufacturing applications will be one of the potential high-growth areas in IS during the next 10 years, largely because of the productivity benefits. Consequently, people who understand the area can expect above-average earnings for the foreseeable future.

Accepting this position doesn't need to be a permanent commitment to manufacturing, but if you think you may stay in the field, you should consider whether you'd be willing to live where the sophisticated manufacturers conduct their software development. Relocation may become necessary if you're going to take advantage of the best career opportunities, and you could find yourself living in upstate New York, the Midwest, Texas or the Southeast.

The likelihood of leveraging your expertise will be much greater in a region with a high concentration of manufacturing companies. Whether or not you decide to move into manufacturing, after five years in a single technical area, you should consider learning some new skills.

Messmer is chairman of Robert Half International, Inc., which places permanent and temporary IS professionals in the U.S. and abroad.

We welcome your questions on career directions. Send them to Cathy Duffy, Careers Fast Track, Computerworld, *375 Cochituate Road, Framingham, Mass. 01701.*

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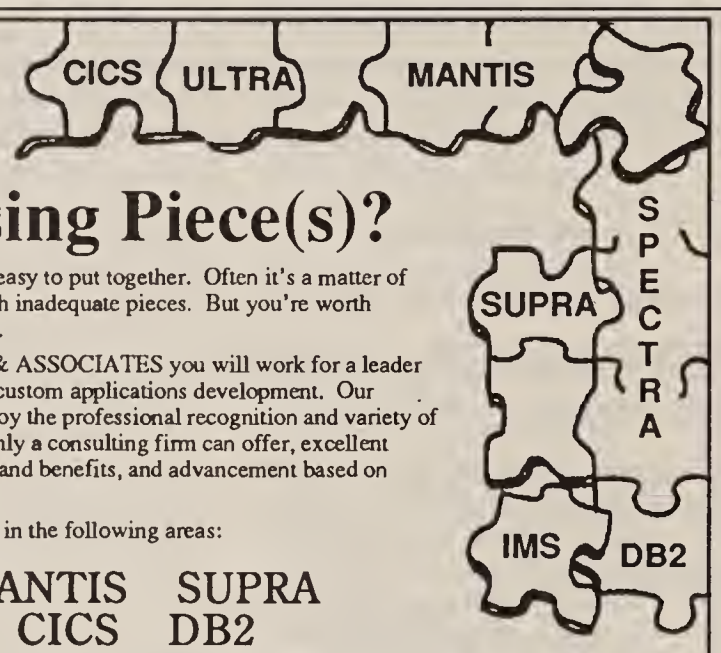

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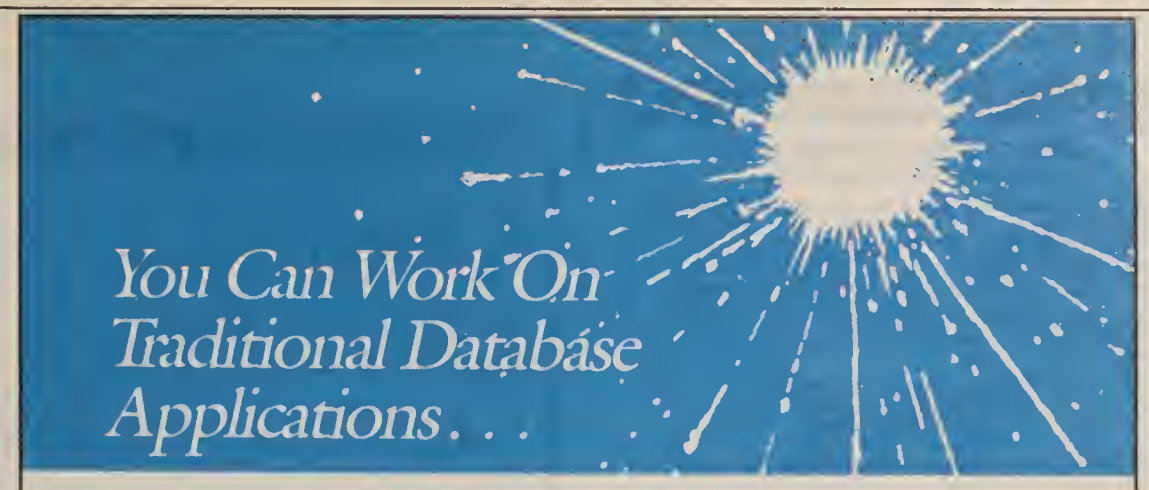

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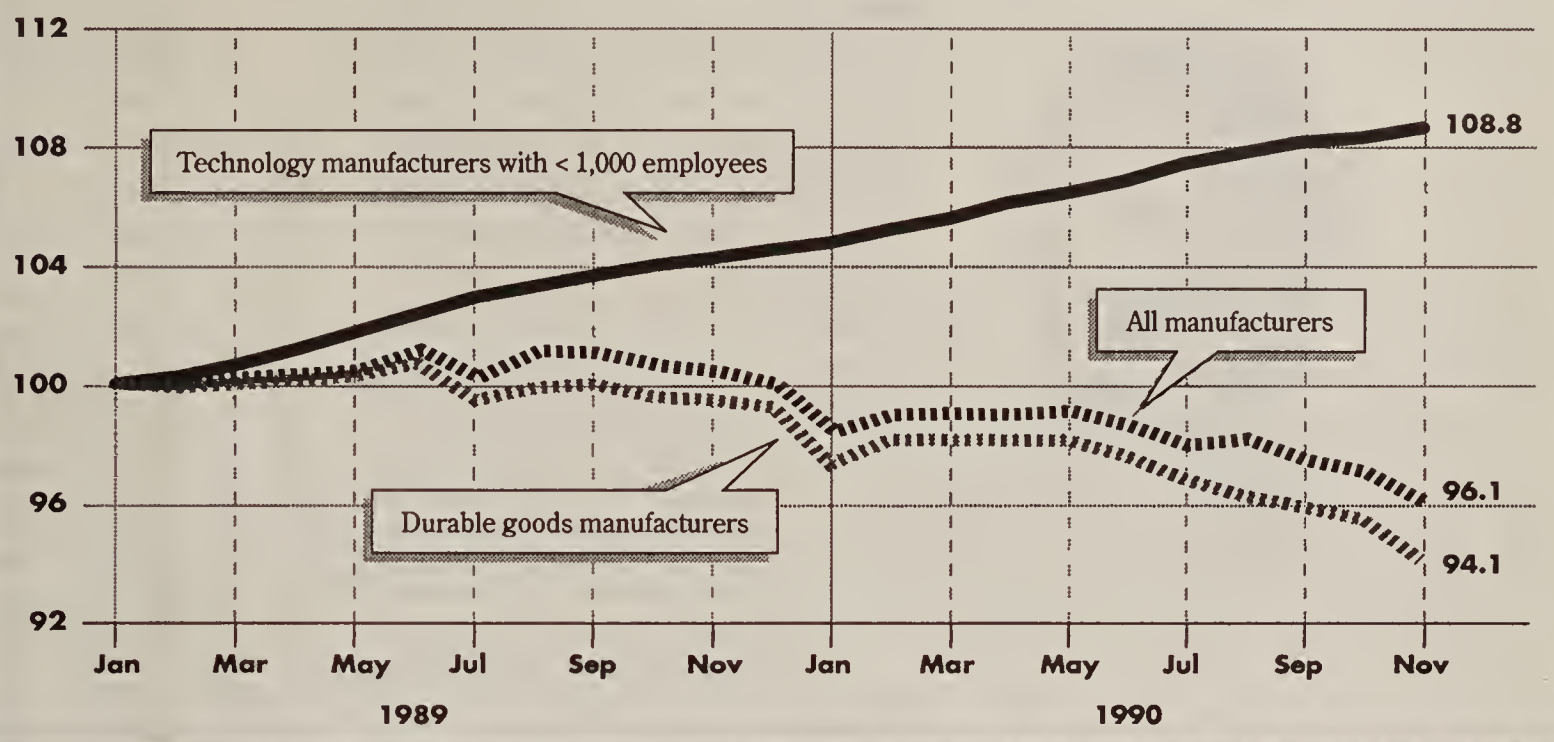

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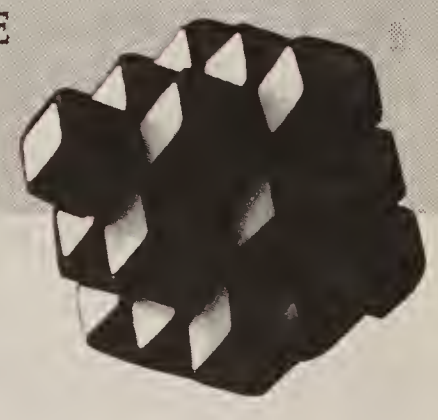
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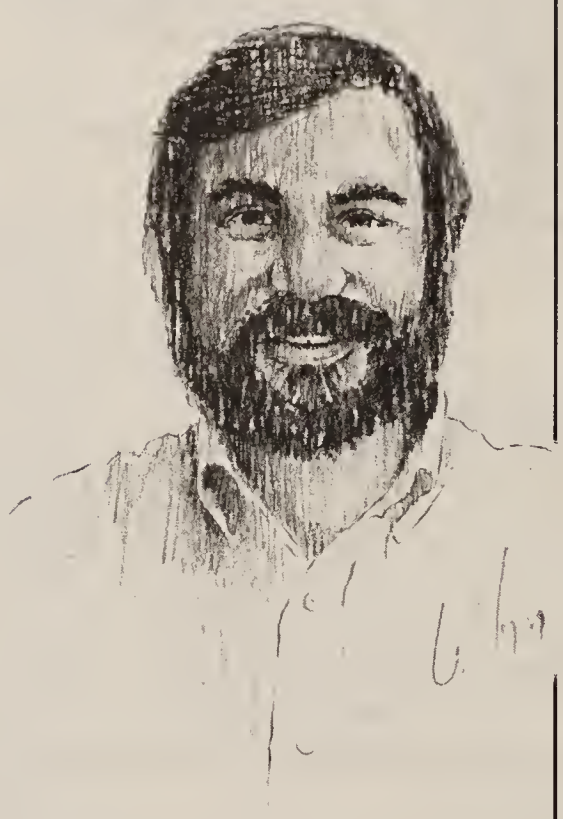

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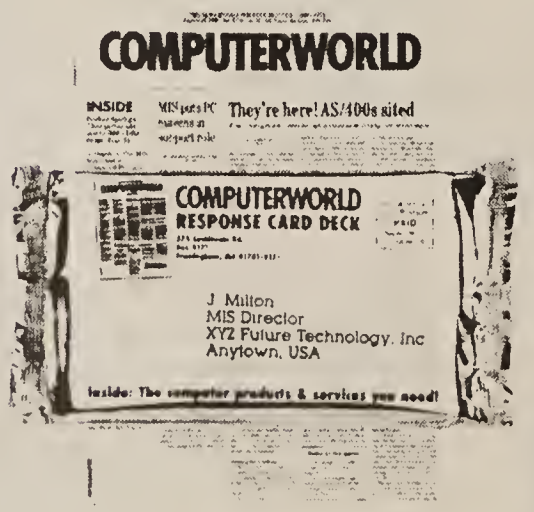
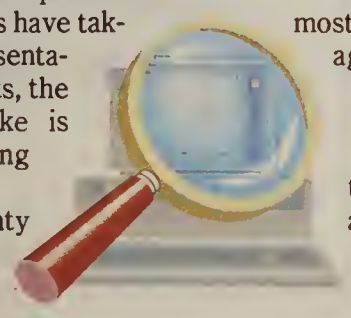


COMPUTERWORLD
DIRECT RESPONSE CARDS

Drawing tools add panache and pizzazz

BY JESSICA KEYES
SPECIAL TO CW

The job of a technology manager has moved far beyond the role of directing the development and implementation of software. It has moved into an era of fierce competition for every corporate budget dollar. And managers find they can't effectively justify their needs by just scribbling presentations on a blackboard. While presentation graphics tools have taken the art of presentation to new heights, the icing on the cake is freehand drawing software.



There are plenty of presentation graphics packages in the marketplace today, running mainly on Apple Computer, Inc. and IBM platforms: Lotus Development Corp.'s Freelance Plus, Software Publishing Corp.'s Harvard Graphics and Wordperfect Corp.'s Drawperfect are taking the lead. And at an average price of $495, presentation graphics tools are easy to justify in most IS budgets [CW, July 30, 1990].

But one software package can't be all things to all people. In the case of presentation graphics, more serious graphics users find that there is a rather large gap in these packages' ability to do, well, graphics.

Specifically, a drawing package picks up where a presentation package ends. Graphics, in the literal meaning of the term, are more than just the squares, circles and straight lines that most presentation packages limit themselves to. A true graphics package, or drawing software tool, lets the user create one- and two-dimensional art images that are the basis for professional-looking presentations. Even if users aren't artists, these packages are powerful enough and forgiving enough to let them create some heavy-duty graphics.

There are several leaders in the drawing software field (see list at right), and the prices hover competitively around the $595 mark. However, starter drawing packages, such as Zsoft Corp.'s PC Paintbrush, cost as little as $149 but for less robust capabilities.

The following is a checklist of important features to look for when purchasing a drawing software package:

• **Design accuracy.** Depending on the kind of job a user has, he may need to produce true-to-life scaled graphics. If his information systems department supports a group of graphics designers, then the accuracy in drawing had better be there for them. If an IS manager is making a major presentation to justify why he wants 1,000 more personal computers for the company, his slides had better be good.

Drawing software enables the presenters to go beyond what presentation software would enable them to draw. In fact, some of these draw packages come with features that let users smooth those squiggly lines, perfect those circles and ensure that their squares are indeed squares.

• **Speed.** Speed is an important consideration because users will constantly have to move images around their screens. The drawing software repositions images and then redraws the screen. It can be quite frustrating to have to wait long periods of time for each redraw.

• **WYSIWYG.** If the what-you-see-is-what-you-get feature is important for desktop publishing and word processing, it's doubly important for drawing software. This may seem like an obvious feature, but many drawing packages don't offer it. If a user labors for hours over a graphical representation of a horse, then he wants to see it reproduced exactly in its final output form.

Top freehand drawing graphics packages

- Corel Systems' Corel Draw Version 1.11
- Computer Support Corp.'s Arts & Letters Graphics Editor Version 2.1
- Micrografx, Inc.'s Micrografx Designer Version 3.0
- Adobe Systems, Inc.'s Adobe Illustrator
- Digital Research, Inc.'s Artline Version 1.0
- Computer Associates International, Inc.'s CA-Superimage Version 1.5
- Kinetic Presentations, Inc.'s Graphs & Art Version 2.0

• **Quality of printed output.** Chances are, the final form of a manager's artistic endeavor will need to be printed. But how? Does his draw package support a plotter such as the six-pen Hewlett-Packard Co. 7475A? If it supports a laser printer, can it print at more than 300 dot/in.? (Most only support 300 dot/in.) The Travelers Corp. uses Corel Systems Corp.'s Corel Draw to achieve print resolution anywhere from the standard 300 dot/in. to a very professional rate of 2,400 dot/in.

• **Clip art library.** Even if a user is a virtual Picasso, why reinvent the wheel? Users must find out if the package they are interested in includes a clip art library in the purchase price (many of them come with coupons that give users discounts on clip art).

• **Ability to import and export clip art.** Most graphics users buy or scan every available piece of clip art they can to save time. Thus, it's a bonus to have the ability to import images from purchased clip art libraries or from other packages that create image files such as simple paint programs or scanners.

Drawing software is a fine complement to presentation graphics software. It provides the capability to create and tailor the basic building block of any good business presentation — the image.

Keyes is president of New Art, Inc., a management and computer consulting firm in New York.

Buy/Sell/Lease

The BoCoEx index on used computers

Closing prices report for the week ending December 21, 1990

	Closing price	Recent high	Recent low
IBM PC Model 176	$300	$450	$200
XT Model 086	$500	$550	$450
XT Model 089	$550	$625	$400
AT Model 099	$650	$975	$500
AT Model 239	$875	$1,025	$750
AT Model 339	$925	$1,100	$900
PS/2 Model 30-286	$1,100	$1,300	$1,025
PS/2 Model 60	$1,500	$1,800	$1,400
PS/2 Model 70P	$3,425	$3,450	$3,175
Compaq Portable II	$900	$1,050	$875
Portable 286	$1,100	$1,450	$1,000
SLT 286	$2,500	$2,625	$1,500
Portable 386	$2,300	$2,800	$2,200
LTE 286	$2,000	$2,100	$1,850
Deskpro 286	$1,000	$1,200	$975
Deskpro 386/20	$2,900	$3,100	$2,400
Apple Macintosh Plus	$750	$975	$700
SE	$1,150	$1,450	$1,100
II	$2,550	$2,900	$2,400
IIFX	$6,500	$6,900	$6,400

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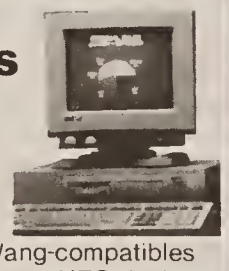

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Government	39,198
Public Utilities, Communication Systems & Transportation Services	38,117
Mining, Construction, Petroleum, Refining	10,123
Manufacturers of Computers, Data Systems Hardware & Peripherals	66,462
Computer Service Bureaus, Software Planning & Consulting	93,492
Computer/Peripheral Dealer/Distributor/Retailer	7,234
Others Allied to the Field	1,580
Qualification Not Determined	6,660
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*Source: Audit Bureau of Circulations Supplemental Data Report, May 25, 1987.

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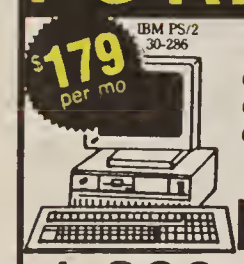

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When IS America and colleges share notes

Editor's note: "Head of the Class" is a monthly column that explores innovative training approaches throughout corporate America.

BY THOMAS R. METZLER
SPECIAL TO CW

The difference between what computer science graduates need to know and what they actually do know can be like ordering dinner at a nouvelle cuisine restaurant: The menu is pleasing, but there isn't always enough substance to justify the price.

From an information systems manager's perspective, this gap translates into expensive and time-consuming training. For example, last year at Cincinnati Bell Information Systems, Inc., computer science graduates received anywhere from three to seven weeks of training to make up for a lack of technical depth.

From a university's perspective, this hole is even more difficult to fill. The faculty members know that there is a problem, but they are hard-pressed to address it because they are overburdened with course development and are trying to keep up with a technical field that changes very quickly.

Fortunately, some colleges and corporations are working together to correct these inadequacies. For example the DeVry Institute of Technology, a four-year college in Columbus, Ohio, addresses this problem by enlisting the help of an advisory board.

The advisory board consists of volunteer IS directors and managers, computer research scientists and training professionals from corporate IS. Some of the companies that currently participate in the program include Cincinnati Bell, Battelle Memorial Institute, J. C. Penney Co., IBM, The Limited, Inc., Bank Ohio and Nationwide Mutual Insurance Co.

DeVry professors formed the advisory board because they weren't sure whether their school's computer science curriculum was appropriately meeting the needs of the industry. In fact, professors and staff were getting feedback not only from the advisers, but also from students, who told them how to gear their courses toward a particular technology or industry.

The board members meet with DeVry faculty several times per year to discuss issues related to the following questions: What should be taught that isn't being taught now? And, where will the IS path lead in three to five years?

The advisory board's input has prompted course changes. In addition, it has given the faculty leverage in negotiating with the administration to obtain state-of-the-art equipment.

For example, at one board meeting, advisers discussed the impact of computer-aided software engineering (CASE) on corporate software development.

Fitting CASE into curriculum

Through these discussions, DeVry staff members became more aware of the increase in the number of IS departments using CASE technology and investigated how CASE could be fit into DeVry's IS curriculum.

First, the staff presented a CASE seminar for the faculty featuring one of the board members. The seminar prompted the faculty to reshape course offerings, ultimately rolling CASE into the second part of a systems analysis course.

A board member experienced with CASE participated in rewriting the course material. In addition, he taught the first two classes as a part-time paid instructor and then proceeded to obtain CASE tools for the student computer laboratory. Eventually, DeVry's computer laboratory was expanded to include 20 Hewlett-Packard Co. personal computers to support the CASE tools.

CASE awareness has grown ever since. This spring, two educational service instructors from Cincinnati Bell will host a seminar to provide a technological overview of information engineering and CASE for the DeVry faculty.

In addition to CASE, other technologies that have been introduced by the board include the following: replacing Pascal with C; adding MS-DOS, PC-DOS and Unix operating system training; enhancing Cobol training, especially the application and maintenance courses; teaching techniques in Cobol code-generating and workstation debugging; and information engineering methodologies.

The benefits from this information exchange program are obvious: DeVry receives professional consulting free from the board members. The school maintains a strong presence in providing companies with graduates who have practical training at a current technological level, and corporations save money in training. The graduates also gain a more marketable education.

Metzler is a senior training instructor at Cincinnati Bell Information System's Technical Center and has been a member of the DeVry computer information systems local advisory board for more than two years.

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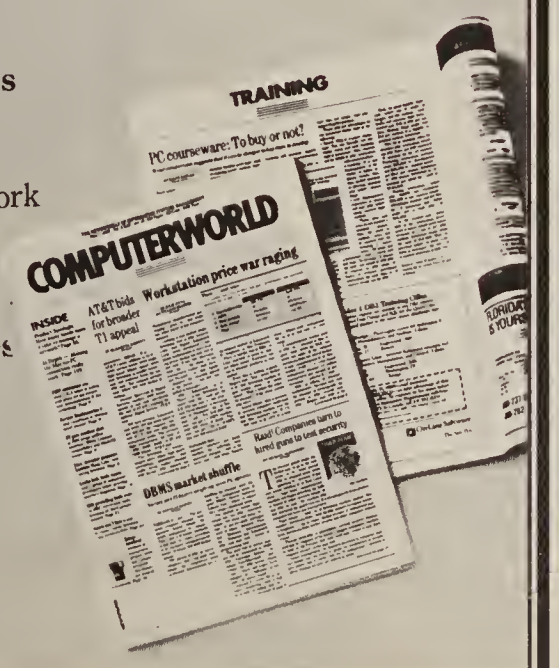

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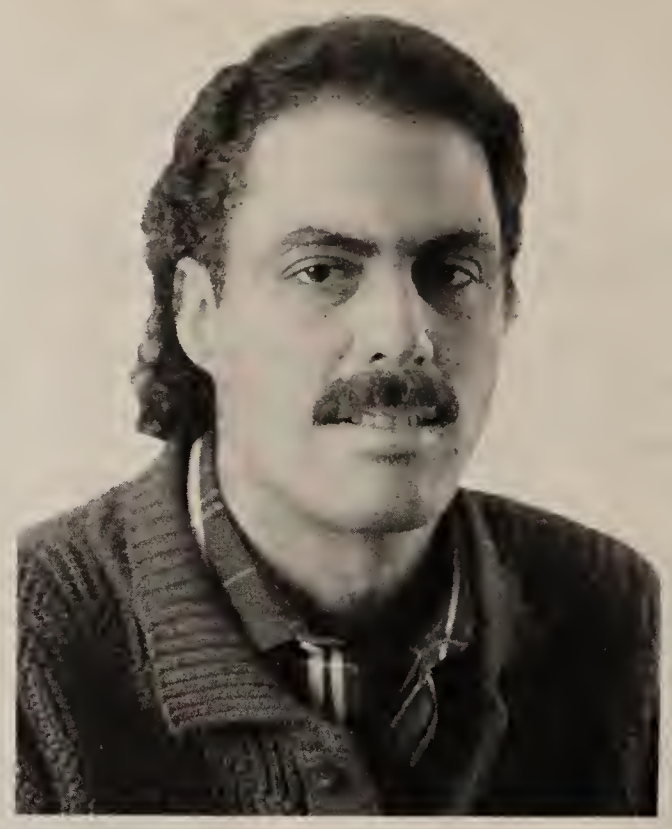

Headquartered in the Boston area, Compurex Systems is a distributor of new and reconditioned IBM and Digital equipment. With a product line that includes everything from systems and disk drives to printers and other peripherals, it has a lot to offer large end users. President Mark, "Rocky" Ostroff, along with his two partners, Christopher Pernock and Jack Malamut, face the challenge of finding everyone who has something to sell or is looking to buy. When it comes to advertising, they're on the right track.

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FROM HOLD TO BUY: **AST Research, Inc.** (by Prudential-Bache Securities, Inc.). Reason: Current-quarter earnings will outpace predictions . . . **Intergraph Corp.** (by Prudential-Bache). Reason: Expected to diversify product line by adding software for workstations from **Sun Microsystems, Inc.**

FROM SELL TO HOLD: **Digital Equipment Corp.** (by Bear Stearns & Co.). Reason: Reorganization of sales and distribution divisions is a step toward streamlining the firm and becoming more responsive to customers.

FROM MARKET PERFORMER TO UNDERPERFORMER: **Adobe Systems, Inc.** (by Montgomery Securities) Reason: Uncertainty about revenue growth and the decision to increase operating expenses this year.

INSIDER ACTION

Two vice presidents at **Comdisco, Inc.**, James Duncan and Hugh Roberts, bought stock in the firm early last month. Duncan added more than 68,700 shares to his holdings, while Roberts bought 9,296 shares.

John Adler, chairman of **Adaptec, Inc.**, bought 42,500 shares of company stock in November.

Microsoft Corp. President and Chief Operating Officer Jon Shirley and Director P. G. Allen sold chunks of their stakes in the company in mid-November. Shirley reduced his holdings by 13%, or 7,640 shares, while Allen sold 1% of his portfolio.

GUEST SPEAKER

LIZ BUYER, vice president and personal computer analyst, Needham & Co., New York:

"I do expect growth in the personal computer arena in 1991. Corporations are watching or cutting budgets, so MIS directors may not be able to cost-justify an expensive new **Compaq Computer Corp.** machine any longer. Companies will be forced to look at the cheaper products of second-tier PC makers, such as AST Research, **Advanced Logic Research, Inc.** (ALR) and **Dell Computer Corp.**

"AST will probably pick up the most customers, because it advertises so effectively. Its stock is a good buy now.

"Long-term investors should buy ALR and **Tandy Corp.** This quarter won't be great for Tandy, but it will come out ahead of most other retailers. The stock will reach the high twenties, maybe even poke into the thirties, within a year.

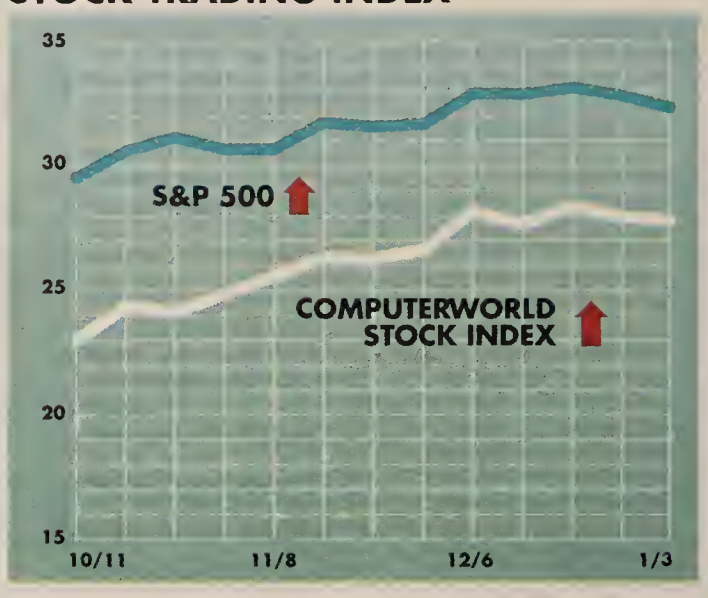
"Sell shares of **Everex Corp.** It doesn't have a strong product now and won't have one for at least six months, when it plans to make introductions. Its notebook computer is moving now, but it has heavy competition from ALR and Compaq."

ANALYSIS IN BRIEF

Demand for mainframes introduced by IBM, **Hitachi Ltd.** and **Amdahl Corp.** last fall continues to beat analyst expectations. Promises to add or improve Unix implementations on these machines will help boost sales. The short-term investment view is cautious but will brighten by later 1991. — *Bear Stearns, Enterprisewide Computing, Dec. 21, 1990.*

KIM S. NASH

STOCK TRADING INDEX



THIS WEEK'S HIGHLIGHTS

- After reporting that its profits dropped 65% in the fiscal second quarter, Oracle Systems Corp. dove 1 point last week to close Thursday at 7.
- Other software issues were mixed, as Prudential-Bache Securities, Inc. released recommendations for the sector. Microsoft Corp. and Automatic Data Processing, the only "buys" on the brokerage firm's list, both advanced last week. Microsoft added ¼ of a point to 75¼, and Automatic Data Processing inched up ⅛ of a notch to close at 53½.
- The excitement on Wall Street over the fight between AT&T and NCR Corp. may be wearing thin, as both stocks fell. NCR lost 1¼ points by Thursday to close at 88¾, while AT&T declined ⅛ of a point to 29⅞.
- While AT&T tangled with its takeover target, MCI Communications Corp. gained 1 point, closing at 19¾.
- Semiconductor maker Texas Instruments, Inc. lost 2 points, closing at 37.

Computerworld Stock Trading Summary

TOP PERCENT GAINERS

Datapoint Corp.	44.44
Masstor Systems	39.94
Businessland Inc.	20.00
Pennl Corp.	19.30
Amplicon Inc.	18.03

TOP PERCENT LOSERS

Alloy Computer	-19.87
Sungard Data Sys.	-18.18
Data General Corp.	-12.50
Tandon Corp.	-11.76
Fibronix Int'l Inc.	-11.67

TOP DOLLAR GAINERS

AST Research Inc.	2.75
Dell Computer Corp.	2.25
NCR Corp.	2.00
Dynatech Corp.	2.00
Sequent Computer S	1.75

TOP DOLLAR LOSERS

Digital Equipment Corp.	-3.63
Bell Atlantic Corp.	-2.00
Nynex Corp.	-2.50
Sungard Data Sys.	-2.50
ITT Corp.	-2.38

Communications and Network Services — Up 0.16%

Exch	52-Week High	52-Week Low		Jan. 2 Close	Wk Net Change	Wk Pct Change
OTC	19.00	5.38	3 COM Corp.	8.25	0.25	3.13
NYS	69.75	52.50	American Info Techs Corp.	66.50	-1.75	-2.56
NYS	46.63	29.50	AT&T	29.75	-1.13	-3.64
OTC	9.63	1.13	Artel Communication Corp.	1.50	-0.06	-4.03
NYS	57.13	39.50	Bell Atlantic Corp.	52.63	-2.75	-4.97
NYS	59.25	49.00	Bellsouth Corp.	54.38	-0.88	-1.58
OTC	16.38	9.25	Compression Labs Inc.	11.00	-0.13	-1.12
NYS	36.38	23.38	Contel Corp.	35.00	-0.38	-1.06
OTC	4.38	1.75	Data Switch Corp.	3.88	-0.25	-6.06
NYS	26.75	8.88	Digital Comm. Assoc.	11.75	-0.50	-4.08
OTC	20.50	12.25	Dynatech Corp.	19.25	2.00	11.59
OTC	12.88	5.50	Fibronix Int'l Inc.	6.63	-0.88	-11.67
OTC	5.13	1.75	Gandalf Technologies Inc.	2.50	0.13	5.26
NYS	5.00	1.63	General Datacomm Inds.	2.25	0.13	5.88
NYS	36.00	23.50	GTE Corp.	28.75	-0.88	-2.95
OTC	8.50	0.88	Infotron Systems Corp.	1.06	0.03	3.10
NYS	60.88	40.25	ITT Corp.	46.63	-2.38	-4.85
OTC	44.88	18.38	MCI Commmunications Corp.	19.75	0.50	2.60
OTC	21.00	2.75	Microcom Inc.	4.19	-0.31	-6.93
NYS	34.38	5.00	Network Equipment Tech.	5.75	-0.13	-2.13
OTC	14.63	4.00	Network General	8.63	0.88	11.29
OTC	15.25	8.00	Network Systems Corp.	11.00	0.50	4.76
NYS	29.63	22.13	Northern Telecom Ltd.	27.88	0.00	0.00
OTC	34.00	13.75	Novell Inc.	33.75	0.75	2.27
NYS	91.38	67.13	Nynex Corp.	70.50	-2.50	-3.42
NYS	51.50	36.25	Pacific Telesis Group	44.63	-1.75	-3.77
ASE	9.13	4.75	Pennl Corp.	8.50	1.38	19.30
NYS	29.13	8.88	Scientific Atlanta Inc.	12.75	0.25	2.00
NYS	64.75	47.25	Southwestern Bell Corp.	55.75	-0.63	-1.11
NYS	46.38	20.63	United Telecom	23.25	0.63	2.78
NYS	40.50	32.38	U S West Inc.	38.25	-1.25	-3.16

Computer Systems — Up 3.81%

OTC	8.75	0.56	Alliant Computer Sys.	1.16	0.16	15.60
ASE	18.88	10.00	Amdahl Corp.	14.00	-0.63	-4.27
OTC	47.75	24.25	Apple Computer Inc.	43.50	-0.50	-1.14
OTC	13.88	4.25	Archive Corp.	6.38	0.38	6.25
NYS	7.63	3.88	Bolt, Beranek & Newman	4.63	0.38	8.82
NYS	11.88	4.50	Commodore Int'l	11.38	1.38	13.75
NYS	67.88	35.50	Compaq Computer Corp.	56.25	-0.25	-0.44
OTC	4.25	0.13	Computer Automation Inc.	0.75	0.06	9.01
NYS	21.63	7.63	Control Data Corp.	8.88	0.13	1.43
NYS	20.88	8.38	Convex Computer	10.88	-0.38	-3.33
NYS	51.25	20.00	Cray Research Inc.	30.50	0.50	1.67
NYS	13.25	3.50	Data General Corp.	4.38	-0.63	-12.50
NYS	4.38	0.75	Datapoint Corp.	1.63	0.50	44.44
OTC	18.25	4.63	Dell Computer Corp.	18.25	2.25	14.06
NYS	95.13	45.50	Digital Equipment Corp.	54.88	-3.63	-6.20
NYS	36.13	13.75	Harris Corp.	20.63	1.13	5.77
NYS	50.38	24.88	Hewlett Packard Co.	31.75	0.13	0.40
NYS	123.13	94.13	IBM	112.13	-1.63	-1.43
OTC	14.00	8.00	Information Int'l	8.75	0.50	6.06
OTC	23.50	10.50	Intergraph	14.00	0.25	1.82
NYS	3.88	0.88	MAI Basic Four Inc.	1.00	0.00	0.00
NYS	166.00	115.50	Matsushita Electronics	118.00	-2.00	-1.67
OTC	26.00	9.00	Mentor Graphics Corp.	13.63	1.13	9.00
NYS	92.88	44.50	NCR Corp.	89.00	2.00	2.30
OTC	35.50	11.00	Pyramid Technology	12.63	0.63	5.21
OTC	34.00	12.50	Sequent Computer Sys.	18.50	1.75	10.45
NYS	40.88	18.00	Silicon Graphics	26.88	-0.75	-2.71
NYS	29.00	14.63	Stratus Computer Inc.	23.75	0.50	2.15
OTC	37.25	15.00	Sun Microsystems Inc.	21.38	-0.50	-2.29
NYS	30.13	8.88	Tandem Computers Inc.	11.75	0.25	2.17
NYS	41.13	23.50	Tandy Corp.	28.50	-0.38	-1.30
OTC	35.50	6.75	Teradata	12.25	-0.75	-5.77
NYS	9.00	1.38	Ultimate Corp.	2.00	0.00	0.00
NYS	17.13	1.75	Unisys Corp.	2.88	0.38	15.00
ASE	6.25	2.38	Wang Labs Inc. (b)	2.63	0.13	5.00

Software & DP Services — Off 0.89%

OTC	50.75	17.00	Adobe Systems Inc.	28.75	-0.75	-2.54
OTC	31.50	15.00	Aldus Corp.	26.50	0.00	0.00
OTC	19.75	10.50	American Mgmt. Systems	17.88	0.38	2.14
OTC	18.25	7.50	American Software Inc.	14.13	0.13	0.89
NYS	4.75	1.38	Anacomp Inc.	1.75	0.00	0.00
OTC	23.50	10.00	Analysts Int'l	14.25	0.25	1.79
OTC	15.13	4.88	Ashton Tate	5.88	0.00	0.00
OTC	10.25	4.00	ASK Computer Sys.	5.88	0.13	2.17
NYS	60.25	45.25	Auto Data Processing	54.50	0.75	1.40
OTC	60.25	32.00	Autodesk Inc.	50.75	-1.75	-3.33
OTC	25.50	12.00	BGS Systems Inc.	21.50	1.50	7.50
OTC	30.25	17.75	BMC Software Inc.	29.25	1.50	5.41
OTC	21.50	11.00	Boole & Babbage Inc.	14.50	-0.25	-1.89
OTC	32.00	9.88	Borland Int'l	30.38	-0.13	-0.41
NYS	11.88	1.13	Businessland Inc.	1.50	0.25	20.00
OTC	10.25	4.25	Cognos Inc.	8.38	-0.25	-2.90
NYS	16.88	4.38	Computer Associates	7.75	-0.25	-3.13
OTC	17.25	7.75	Computer Horizons	15.75	0.00	0.00
NYS	58.00	36.75	Computer Sciences	49.38	0.63	1.28
NYS	12.25	6.63	Computer Task Group	8.38	0.63	8.06
OTC	25.25	14.25	Comshare Inc.	16.13	-0.63	-3.73
OTC	16.00	3.75	Corporate Software	6.50	0.25	4.00
NYS	40.13	24.38	General Motors (cl e)	37.75	-1.75	-4.43
OTC	18.25	7.25	Goal Systems Int'l	11.75	1.25	11.90
OTC	4.75	1.88	Hogan Systems Inc.	2.44	-0.06	-2.48
OTC	9.75	5.00	Index Technology	8.63	0.13	1.47
OTC	16.63	7.75	Information Resources	9.88	-0.75	-7.06
OTC	17.50	3.50	Informix Corp.	4.25	-0.25	-5.56
OTC	7.88	1.38	Intellicorp Inc.	1.88	0.13	7.14
OTC	27.50	10.00	Knowledgeware Inc.	21.25	0.13	0.59
OTC	31.00	16.75	Legent Corp.	28.38	0.38	1.44
OTC	39.25	12.50	Lotus Development	19.75	-0.13	-0.63
OTC	26.25	13.63	Micrografx	23.50	-1.25	-5.05
OTC	80.75	42.00	Microsoft Corp.	74.75	-1.00	-1.32
NYS	11.38	4.00	On Line Software Int'l	6.13	-0.38	-5.77
OTC	28.38	4.88	Oracle Systems	8.00	-0.13	-1.54
NYS	18.50	7.00	Pansophic Systems	9.63	1.38	16.87
OTC	5.38	1.25	Phoenix Technologies	2.75	0.13	4.76
NYS	43.50	30.00	Policy Management Sys.	41.75	0.13	0.30
NYS	24.50	11.50	Reynolds & Reynolds	16.75	0.50	3.08
OTC	16.13	8.00	Sage Software Inc.	8.75	-0.75	-7.89
OTC	22.25	14.50	SEI Corp.	21.50	0.50	2.38
OTC	18.38	12.00	Shared Medical Systems	15.13	-0.25	-1.63
OTC	28.00	12.00	Software Publishing Corp.	22.75	1.25	5.81
NYS	11.00	5.50	Sterling Software	8.25	0.75	10.00
OTC	26.00	9.50	Sungard Data Sys.	11.25	-2.50	-18.18
OTC	29.50	15.00	Symantec Corp.	27.00	-2.00	-6.90
NYS	24.88	4.50	System Center Inc.	5.75	0.88	17.95
OTC	28.75	12.75	System Software Assoc.	26.75	1.50	5.94
OTC	27.38	4.75	Weitek	7.75	-1.00	-11.43

Semiconductors — Off 1.17%

NYS	25.88	17.38	Advanced Micro Devices	22.38	-0.38	-1.65
NYS	9.88	5.50	Analog Devices Inc.	6.88	-0.50	-6.78
OTC	23.50	5.25	Chips & Technologies	7.75	-0.50	-6.06
OTC	52.00	28.00	Intel Corp.	38.50	-0.75	-1.91
NYS	13.00	5.13	LSI Logic Corp.	6.38	0.13	2.00
NYS	16.38	6.75	Micron Technology	9.88	-1.00	-9.20
NYS	88.38	49.13	Motorola Inc.	52.00	0.00	0.00
NYS	8.88	3.00	National Semiconductor	4.50	-0.38	-7.89
NYS	44.00	22.50	Texas Instruments	37.25	-0.38	-1.00
OTC	12.25	3.00	VLSI Technology	4.88	0.38	8.33
ASE	14.88	4.00	Western Digital Corp.	5.00	0.50	11.11

Peripherals & Subsystems — Up 0.31%

OTC	2.38	0.09	Alloy Computer Prod.	0.13	-0.03	-19.87
OTC	2.50	0.88	Apertus Technologies	1.25	0.00	0.00
OTC	36.50	10.38	AST Research Inc.	36.50	2.75	8.15
OTC	24.00	10.00	Banctec Inc.	10.50	-0.50	-4.55
ASE	7.63	3.13	Cognitronics Corp.	7.13	0.13	1.79
NYS	31.25	12.25	Conner Peripherals	23.13	0.50	2.21
ASE	22.00	7.00	Dataram Corp.	8.75	0.00	0.00
NYS	9.75	3.25	EMC Corp.	8.63	0.75	9.52
NYS	43.88	33.75	Eastman Kodak Co.	41.13	-0.75	-1.79
OTC	8.50	4.38	Emulex Corp.	5.38	0.25	4.88
OTC	34.50	14.00	Evans & Sutherland	17.63	-0.50	-2.76
OTC	8.00	2.50	Interleaf Inc.	3.63	-0.13	-3.33
OTC	6.25	3.00	Iomega Corp.	5.13	-0.06	-1.21
OTC	16.50	5.63	IPL Systems Inc.	14.50	1.00	7.41
OTC	2.38	0.13	Masstor Systems	0.44	0.13	39.94
OTC	17.00	4.00	Maxtor Corp.	5.13	0.25	5.13
OTC	10.25	3.38	Micropolis Corp.	8.25	-0.50	-5.71
NYS	91.38	73.63	3M Corp	84.88	-1.50	-1.74
OTC	14.50	6.00	Printronix Inc.	8.75	0.13	1.45
NYS	21.25	8.50	QMS Inc.	14.25	-0.75	-5.00
OTC	25.75	8.88	Quantum Corp.	17.88	-0.63	-3.38
NYS	7.50	4.38	Recognition Equipment	5.00	0.00	0.00
OTC	9.88	4.00	Rexon Inc.	6.50	-0.63	-8.77
OTC	19.75	5.63	Seagate Technology	11.63	-0.25	-2.11
NYS	35.25	11.00	Storage Technology	21.50	-0.50	-2.27
OTC	4.00	0.63	Tandon Corp.	1.88	-0.25	-11.76
NYS	19.25	11.63	Tektronix Inc.	18.13	-0.13	-0.68
OTC	0.63	0.19	Televideo Systems	0.22	0.00	0.00
NYS	58.88	29.00	Xerox Corp.	36.25	1.13	3.20

Leasing Companies — Up 4.79%

OTC	11.00	6.88	Amplicon Inc.	9.00	1.38	18.03
OTC	4.50	0.31	Capital Associates	0.69	0.06	10.08
NYS	28.50	14.63	Comdisco Inc.	18.88	1.38	7.86
OTC	16.50	9.25	LDI Corporation	12.00	-0.25	-2.04
OTC	6.75	2.25	Selecterm Inc.	2.25	-0.25	-10.00

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NEWS SHORTS

Ingari leaves Lotus

While Interleaf President Robert Weiler was going in one door at Lotus Development Corp. (see story page 97), Lotus Vice President Frank Ingari was going out another — and up the career ladder. Last week, Ingari was appointed president and chief executive officer at Ontologic, Inc. Ingari previously headed up the Emerging Markets Business Group at Lotus and was responsible for the recent launch of Lotus Marketplace. That group will now report to Lotus Vice President June Rokoff. Separately, Ontologic, which claims to have 200 commercial sites using object-oriented databases, announced Release 2.0 of its Ontos production database. In his new post, Ingari said he expects to be doing a lot of market creation and evangelism work. Relational is king among databases today, but object orientation is the next generation, he said.

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Michigan dumps software tax

The Michigan state legislature has decided not to tax computer software as tangible personal property after all. In a move praised by Adapso, the legislators reversed a decision by the state tax commission that applied the tax to all software within the state — whether developed by a company for internal use, by a contractor or purchased off the shelf. The tax was strongly opposed by Comshare, Inc., a software vendor based in Ann Arbor, Mich., and the Michigan Chamber of Commerce.

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Computer law pioneer dies

Edward Saltzberg, a computer industry attorney credited as a pioneer in the emerging area of intellectual property law, died suddenly of a cerebral hemorrhage last week. Saltzberg, 43, a partner in the Boston-based law firm Warner & Stackpole, started his career as a systems analyst. He spearheaded and edited the "Computer Law" newsletter, a publication distributed by his firm. Saltzberg described himself as an interpreter, able to translate "legal jargon and computerese back into a language that all can understand."

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Northern chops pollutants

Northern Telecom, Inc. announced last week that its two largest manufacturing operations have completely eliminated the use of chlorofluorocarbons (CFC), adding that it plans to completely eliminate CFCs from its worldwide operations sometime this year. The network switch manufacturer said it has reduced its use of CFCs by 80% since July 1988. The current use of CFC solvents by a variety of industries is reported to be depleting the earth's protective ozone layer. Northern Telecom, along with other members of the electronics industry, uses CFC-113 solvents to clean soldering residue from printed circuit boards.

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Los Alamos licenses testers

Los Alamos National Laboratory has granted an exclusive license to Input Output Systems Corp. for testers of the High Performance Parallel Interface (Hippi) channel. Mountain View, Calif.-based Input Output, which is a joint venture of FPS Computing and Systolic Technology, Inc., will develop, manufacture and distribute the testers. The Hippi channel, which is supported by such high-performance computer firms as Cray Research, Inc., IBM and FPS Computing, supports a data bandwidth of 100M byte/sec.

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Summer trial for Lotus cases?

Following a pretrial conference last week with Lotus Development Corp., Borland International, Inc. and The Santa Cruz Operation (SCO), U.S. District Court Judge Robert Keeton had ordered Borland and SCO to combine their evidence-gathering activities and gave them six months to complete the process. Borland's request for a one-year discovery period was rejected by Keeton, who said he would rule later on whether he will combine the two trials into one. Lotus has filed separate suits in Boston federal court against Borland and SCO, alleging copyright infringements. A Lotus spokesman said a trial date will probably be set this summer.

Third-party tool gains manufacturing favor

BY ELISABETH HORWITT
CW STAFF

Approximately one year after hitting the market, a third-party tool for coordinating data flow between shop-floor process control and business systems is well on its way to being a computer-integrated manufacturing (CIM) linchpin for the process manufacturing industries. It has also become a keystone of IBM's efforts to become those industries' prime CIM supplier, according to one company spokesman.

Process Operations Management System (POMS), developed by Industrial Computing Designs Corp., or Incode, is an IBM OS/2 Extended-based system that combines a relational database management system "core" with application development tools.

The resulting architecture is said to allow nonprogramming users to develop their own applications to integrate various levels of plant scheduling, operations and control.

By backing the development of a "real, live CIM application that targets real, live business problems," IBM hoped to encourage process manufacturers to take the CIM plunge, said Jim Dixon, IBM's strategy manager for the process industries. Unlike discrete manufacturers, the process industries have been almost virgin territory when it comes to CIM implementations, according to Cambridge, Mass., research firm Advanced Manufacturing Research, Inc.

Worth the risk

IBM's gamble has clearly paid off: In the first year of commercial availability, POMS has been implemented at 50 to 80 companies, including a growing number of process industry sectors and at least one discrete manufacturer, Dixon said.

While the vast majority of the newer installations consist of one test site, several members of the POMS consortium are now preparing to move beyond testing to expanding installation. The consortium, which was formed to provide input, funding and pilot testing for POMS, consisted of IBM and five food and drug companies.

Nestle Foods Corp. is one such company. The food giant is now in the process of setting up a POMS database that will collect data from the factory floor and feed it into scheduling, analysis and eventually inventory and manufacturing resource planning systems, according to company spokesman Walter Carey. POMS saved Nestle from the expense of having to develop its own system, Carey said.

One of POMS' more recent implementors is Baxter Health Care Corp. At Baxter's intravenous solutions plant in North Cove, N.C., POMS applications now under development will not only manage collection of data for compliance with Food and Drug Administration requirements but will also ensure better compliance by sending instructions down to the personal computers of users on the plant floor, according to Steve Hunter, CIM development manager.

One of POMS' biggest pluses, Hunter said, is the fact that it is designed for use by people like him who are not programmers but "know operations, documentation and FDA requirements."

One of the reasons POMS has met such a wide range of user needs is that it was endowed with "snap-ons" — hooks on which existing third-party software packages can post data to and access data from POMS databases. IBM is now pushing for links between POMS and the systems and applications of its chief rivals on the factory floor. "We can't expect users to throw out all of their existing systems," Dixon said.

POMS' support of a broad range of IBM and non-IBM systems is key to Rohm & Haas Co., said Alan Kober, the Philadelphia-based firm's information technology manager. Rohm & Haas is installing POMS at one of its plants to collect data from process control systems and feed the relevant data to business systems and to a database that can be accessed by trouble-shooting, process optimization and quality improvement applications, Kober said.

> IBM IS NOW pushing for links between POMS and the systems and applications of its chief rivals on the factory floor.

Reading POMS

In one year, POMS has drawn between 50 and 80 converts to IBM's Computer Integrated Manufacturing Advantage Program — and, incidentally, sold a fair number of OS/2 Extended Edition-based workstations. However, recent and pending developments could make 1990's harvest of customers look paltry in comparison with this year's doings.

Perhaps the most crucial development to date is IBM's purchase last October of sole marketing rights to POMS from Incode. IBM charges $6,300 for one workstation license, compared with Incode's $4,900 price tag. However, IBM's price includes one year of maintenance and updates, an amenity many Fortune 500 companies will appreciate. Incode remains the system's primary developer.

The year 1990 also saw the disbanding of the original POMS consortium to make way for a second group, which will include IBM and end users. The group's mandate will be to define POMS' next batch of added capabilities.

Those capabilities will include the following:

- Advanced statistical analysis, modeling and experimental tools will be integrated into POMS so that such applications can make use of the large volume of data available in the system's relational database.
- Incorporation of technology recently developed jointly by IBM and Intel Corp., which makes it practical to transmit interactive video over local-area networks. As a result, supervisors will not only be able to track how their operators are doing on the floor but also instruct them to call up a given video that will demonstrate the next procedure via POMS, according to Incode President Kurt Grina.
- POMS' graphics capabilities will be extended to include more recent developments in IBM's Common User Access interface. This will provide users with the ability to view and zoom in on various factory processes in real time, Grina said.
- Support of networking protocols that will allow POMS workstations to interact with other major plant systems from firms such as Digital Equipment Corp. and Hewlett-Packard Co.
- Links between POMS on the OS/2 and IBM RISC System/6000 AIX workstations. This development addresses the growing support among engineers for databases running on such systems, Grina said.

ELISABETH HORWITT

Blue Shield

FROM PAGE 1

Imageplus image processing application.

"However, the cost per MIPS [millions of instructions per second] is phenomenally lower on the desktop than on the mainframe," explained Richard R. Buehler, director of information strategy.

Mainframes are still needed to house the corporate IBM DB2 database, according to Buehler. He said the relational database management system allows him to get reports one day after the end of the month and "look at all aspects of the company and customers — not just claims — instead of being 120 days behind the power curve."

> "PART OF THE payback on our investment will simply be staying in business."
>
> ROBERT E. THOMAS
> BLUE SHIELD OF
> PENNSYLVANIA

The company, which fortunately has no existing LAN investment to abandon, has standardized on the Banyan Systems, Inc. Virtual Networking System network operating system (see story below).

"We were given orders by executive management in February of 1989 to look at the whole computing ball of wax so that we could hold our place in the market," Buehler said. "We determined that the network was the key to the whole thing — the real pipeline," he said.

Buehler estimated that his company will have invested about $3.5 million in its revamped network between 1989 and year's end 1991.

"Part of the payback on our investment will simply be staying in business," commented Robert E. Thomas, manager of technical strategies.

He said the network is needed to support the addition of a new facility and 1,500 to 3,000 users this year. The configuration will involve the installation of 30 to 50 high-end IBM Personal System/2s and possibly Compaq Computer Corp. Systempros as servers.

Currently, the four-site Blue Shield campus supports about 6,000 users, and its information services staff numbers about 600.

Other factors inspiring the firm to a LAN solution were the influx of nearly 800 personal computers into the company and the hefty cost of directly attaching them to the mainframes — particularly because the company moves about 50% of its staff per year, according to Thomas.

He added the company will save $115,000 per year by terminating its lease for Hyperchannel Network Systems Corp.'s Hyperchannel extenders — high-speed PC-to-mainframe links.

Replacing IBM controllers

A $2.5 million chunk of the firm's $3.5 million investment will go toward replacing about 200 IBM 3274 cluster controllers, which do not attach to a Token-Ring network.

The new cluster controllers will protect the company's investment in about 4,500 3270 dumb terminals by bringing them onto the Token-Ring network. Claims applications will remain on the terminals, while PCs will be used for data manipulation and statistical and actuarial tasks.

Cluster controllers link terminals and PCs into an IBM front-end processor, which hooks into an IBM mainframe.

About $750,000 will be invested in IBM Token-Ring bridges, which were selected over equipment from Andrew Network Products and Crosscom Corp. after benchmark testing, according to the company.

Token-Ring LANs spanning five locations will interconnect via two 16M bit/sec. fiber backbones (one for redundancy), which will eventually be upgraded to 100M bit/sec. Fiber Distributed Data Interface LANs when the company deems it a stable technology, according to Michael S. Kinsey, leader of the network project.

Blue Shield of Pennsylvania's *Buehler, Thomas and Kinsey are leading the company's LAN brigade*

The fiber backbones tie into the company's four mainframes via an IBM 3745 front-end processor and bridge to the satellite locations over redundant dedicated T1 lines, which carry both voice and data.

Redundancy was a major network consideration, according to Buehler. Part of the reason, he said, is that the government mandates that any agency handling Medicare claims must provide nearly 100% network availability. Inherent in Token-Ring technology is a loop-back capability, which is not found in Ethernet LANs, that allows the network to wrap and heal if one node goes down.

Health care insurer picks Vines

Amid all of the purchasing decisions facing Pennsylvania Blue Shield after signing off on a Token-Ring local-area networking strategy was the selection of a network operating system. The firm chose Banyan Systems, Inc.'s Virtual Networking System (Vines), which industry analysts have long pegged as a technical prodigy because of its Streettalk global naming service.

The Streettalk feature, which allows users to use one log-on from anywhere in a wide-area network, better positions the network operating system for enterprisewide networking than products inherently designed for departmental-size networks.

Indeed, the insurance carrier said it chose Vines for "its ease of use and ability to have one log-on," said Linda DuRussell, a communications programmer in the company's network planning and design group who recommended Banyan.

While Pennsylvania Blue Shield acknowledged that commercial applications are more widely available for other network operating systems — such as market leader Novell, Inc.'s Netware — the insurance carrier is taking strides to minimize in-house software development. Blue Shield has joined with other large Banyan users to approach applications developers en masse and demand the applications they need [CW, Dec. 17, 1990].

Banyan said it fully supports the fledgling group. "It is precisely the type of customer lobby the industry needs to validate future development for what promises to be one of the booming software markets of the new decade," said James D'Arezzo, vice president of marketing at Banyan.

While Banyan positions itself as an enterprise vendor, DuRussell acknowledged that "you get better response from Banyan without troubling them with petty problems." She added that Banyan has suggested the company work with a value-added reseller instead of directly with the vendor for support.

JOANIE M. WEXLER

IBM bids to build on Japan clone market

BY RICHARD PASTORE
CW STAFF

As the U.S. personal computer market continues gasping for growth and the Western European market becomes winded, PC vendors are turning to the Far East for resuscitation. As evidence, IBM announced its intention late last month to open up its Japanese PC architecture to clone vendors.

U.S. PC shipments will grow by only 3% in 1991, while Western European shipments will increase 6.5% enroute to a 1992 peak, according to International Data Corp. in Framingham, Mass. The Japanese market, however, will jump 25.5% this year.

To get a bigger piece of this fast action, IBM has formed an Open Architecture Developers Group in Japan that will provide future members with specifications, testing guidelines and technical support for building Japan-specific IBM-compatible systems.

When the group gets down to business sometime next year, the first architectures to be opened will be the Japanese version of IBM's Personal System/2 Model 55, its new Kanji/English DOS J4.0/V and the Video Graphics Array controller.

"We're opening this architecture as we did with DOS here to try to encourage it becoming a more widely accepted standard," IBM spokesman Mac Jeffrey said.

Increased Japanese sales

In Japan, the move is expected to increase development of IBM-compatible hardware and software, which in turn should spur sales.

"So far, users have tended to choose NEC because of the variety of software applications," a Japanese user told *Computerworld Japan*. "But from now on, IBM can be a big candidate for purchase because we can expect many more applications than before."

NEC Corp. dominated the market in fiscal 1989 with about 47% of PCs shipped and 46% of the installed base. IBM units comprised only 6% of shipments and 5% of the installed base.

Because the group is open to members from Japan and elsewhere, it could make rivals such as Compaq Computer Corp. overseas bedfellows with IBM.

"If Compaq went ahead with their own products in Japan, they would be fighting NEC. It seems they would be better off joining a common cause," said Sam Albert, an independent consultant and president of Sam Albert Associates in Scarsdale, N.Y.

In a recent interview, Compaq Chief Executive Officer Rod Canion stated his intent to launch a major thrust into the Japanese market over the next five years. However, he added, "It will be a tough market to enter."

IBM's open architecture strategy will be expanded to OS/2, the Micro Channel Architecture (MCA) bus and more advanced graphics controllers, IBM Japan Vice President and General Manager Nobuo Mii said. IBM will not charge license fees for these technologies, with the exception of MCA, he noted.

Mii also intimated that the program will span beyond Japan. "Other worldwide IBM offices, including Europe, Taiwan and Korea, will soon take the same approach," he said. IBM spokesmen in the U.S. could not confirm these expansion plans.

Lotus/DBMS killed in inaction

Officials say firm is switching to a family of database tools for nonpros

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — It looks like Lotus/DBMS, which Chairman Jim Manzi recently classified as "missing in action," is actually dead. Lotus Development Corp. officials acknowledged last week that it has killed the database engine, first announced in May 1987.

There is an element of truth in Manzi's joking remark. Eric Kim, general manager at Lotus' End User Database Tools Group, confirmed last week that the database engine has been scuttled. Kim and Manzi said that, instead, they plan to deliver a family of database tools for nondatabase professionals during the next 12 to 18 months. The first tool in this family to ship was Datalens.

Lotus plans to enable the average spreadsheet user to quickly and painlessly access, capture and structure data in a way that is meaningful to the user. For example, the user may need to manipulate and attach certain numbers to the same report every week, Manzi said. Lotus plans to provide tools that will enable the user to write an application to automate the process.

This latest database strategy has gone through many incarnations and unmet promises. The initial strategy was to ship an OS/2-based Lotus/DBMS for networks in 1988, after OS/2 Presentation Manager shipped. Lotus/DBMS was supposed to aid in linking local-area networks to IBM hosts, and it was described as a line of LAN and SQL database products whose engine would be compatible with IBM's DB2.

Victim of circumstance

Lotus/DBMS "lost its way," according to a source close to Lotus. The source claimed the project fell prey to various "screwups" as well as a revamping of priorities in 1989 as Lotus hustled to get 1-2-3 Version 3.0 out the door.

At one point, the product veered off course into a since-aborted Ashton-Tate Corp. Dbase clone effort. "It wasn't a well-managed product," the source said.

This track record does not deter Manzi's apparent determination to crack the database management system market, however. "If we do our job right, the end user will be able to get at the database without IS intervention," he predicted, saying that every white-collar job has the need to access "immense warehouses of data."

Neither Manzi nor Kim would explain how this would be done. Kim did say Lotus is looking at providing tools that do things spreadsheets and word processor are not made to do.

Kim ticked off a list of probabilities, including tools that would help users get to needed data in a relational DBMS, build applications quickly, keep track of information and provide a way to attach data to prespecified files on a regular basis. He did not elaborate further.

Kim said the key to cracking the market is "breaking the usability barrier." Existing tools require users to be database experts, he claimed. Lotus' strategy is to "provide a higher degree of usability through a combination of a graphical user interface — Microsoft Corp.'s Windows 3.0 first — object-oriented programming and a true client/server architecture," Kim said.

Weiler jumps Interleaf, takes Lotus sales helm

BY PATRICIA KEEFE
CW STAFF

CAMBRIDGE, Mass. — Following two quarters of sluggish profitability and increasingly successful raids by competitors on its installed base, Lotus Development Corp. last week named Interleaf, Inc. President Robert Weiler senior vice president of sales and marketing.

Weiler: *brings IS experience from Cullinet, M&D*

Weiler will report to Lotus President Jim Manzi. The post was formerly managed by Frank King, senior vice president of the Software Business Group.

A onetime president of Cullinet Software, Inc. who gained his management training in various positions at McCormack and Dodge, Weiler gets high marks from industry observers.

"He's a brillant marketer," said Mort Rosenthal, president of Corporate Software, Inc. Weiler sits on Corporate Software's board.

The appointment is seen by industry observers as a sign that Lotus will become more aggressive in the months ahead, when it is expected to introduce at least as many products as it did last year. These will include the release of 1-2-3 for Windows and a version for Apple Computer, Inc.'s Macintosh.

"One of my priorities will be competitive response," Weiler said in an interview. This is considered key by analysts such as Montgomery Securities' David Bayer, who said that this week's release of Microsoft Corp.'s Excel 3.0 (see story page 1) will make it that much harder for Lotus to post a profitable first quarter.

Following Weiler's departure, Interleaf named Mark K. Ruport president and chief operating officer. He was previously Interleaf's senior vice president of sales and marketing.

While acknowledging the need to aggressively confront rivals Microsoft and Borland International, Inc., Manzi said Weiler's primary role will be to use his information systems experience to transition Lotus as the industry moves away from stand-alone retail sales toward more corporate and network-oriented sales.

The 39-year-old Weiler is generally credited with turning around the financially troubled Interleaf, which produced a small profit at the end of his 14-month tenure.

A 17-year industry veteran, Weiler joined Interleaf after serving as president and COO at Cullinet. Before that, he was president and chief executive officer at Distributed Management Systems, which was acquired by Cullinet.

Macworld eyes will be focused on connectivity

BY JAMES DALY
CW STAFF

SAN FRANCISCO — Connectivity will be the buzzword at this week's kickoff of the semiannual Macworld Expo as Apple Computer, Inc. unveils a pair of add-on Ethernet connectivity cards: one designed for the Macintosh LC and another for its Macintosh II family. Several transceivers and an updated version of Apple's X Window System-based software for its A/UX Unix offering will also debut during the four-day show.

The networking card introductions highlight Apple's renewed commitment to go beyond the slow 230K bit/sec. Localtalk support built into the Macintosh motherboards and to commit to faster 10M bit/sec. Ethernet connectivity options. "Ethernet is the LAN medium of choice; it provides the higher speed platform we need for the large corporate network accounts," said Jim Groff, Apple's networking and communications product manager.

The Ethernet NB Card features a built-in Motorola, Inc. 68000 microprocessor and is scheduled to arrive in the first quarter and sell for $424. The Ethernet LC card is due by the end of the month and will sell for $199. Both boards will include an attachment unit interface that requires Apple's new Ethernet Twisted-Pair Transceiver. Groff said the design simplifies network installation and configuration changes because it allows users to connect and disconnect at the interface level rather than at the cable level, leaving the transceiver in place.

A Macintosh picture

The graphics abilities of the Macintosh have spurred a healthy market for presentation graphics software

	Packages shipped (in thousands)	Revenue (in millions)	Installed base (in thousands)
1988	107.3	$18.7	210.1
1989	141.0	$30.4	351.1
1990*	183.3	$47.3	534.4
1991*	243.2	$62.0	777.6

*Estimated

Source: International Data Corp. CW Chart: Paul Mock

Additionally, Apple will introduce X Window System 2.1 for its A/UX Unix derivative. The system will sell for $350 and is scheduled to ship by the end of the month.

Other products expected to debut at Macworld include the following:

- Apple third-party networking product manufacturer Asante Technologies, Inc. will announce a family of products that supports Apple's new Ethernet strategy.
- Sony Corp. will strengthen its multimedia offerings with the VBOX controller, a computer/video interface box that helps step up the integration of video cameras, recorders and display devices into the personal computer environment. VBOX is slated to be available later this year. No price had been determined at press time.
- Radius, Inc. will add a spin to color with a color version of its Pivot Monitor. The company will also unveil the Pivot for Built-In Video, which offers built-in video display capabilities for the Macintosh.
- Solutions, Inc. will unveil its Appletalk version of Backfax, which allows a single facsimile modem to be shared by Appletalk network users. The Williston, Vt.-based company said it will ship the product in the spring with a suggested retail price of $495 for a server and five users.
- Advanced Vision Research, Inc. will introduce both the AVR 3000/CL Plus color scanner and the AVR 3000/GS Plus gray-scale scanner. The products are expected to be available later this month for $2,590 and $2,090, respectively.
- Paracomp, Inc. will demonstrate a full revision of its Modelshop three-dimensional design and sketch tool. Modelshop II will be priced between $600 and $800; the product is scheduled to ship in March.

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TRENDS

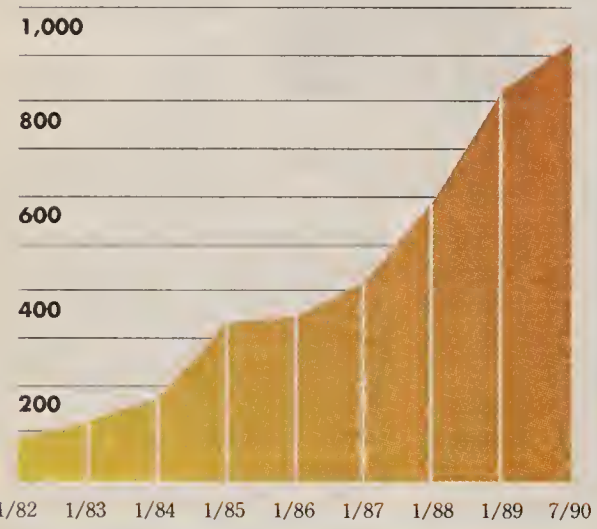
DASD

The pace of the direct-access storage device (DASD) market within the IBM/plug-compatible arena has slowed in the last two years after enjoying a period of prolonged growth

Estimated installed DASD capacity, U.S. sites

(in terabytes)

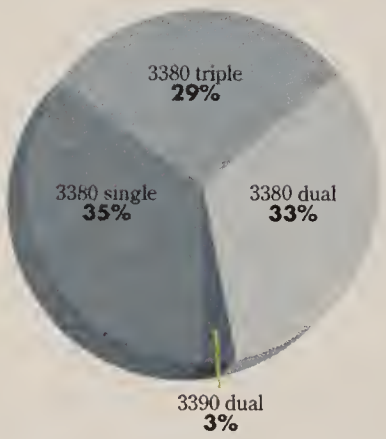
Although installed DASD capacity has reached over 900 terabytes, the anticipation of the 3390 lessened the demand for 3380 drives slightly, causing a slowdown in the rapid growth the market experienced a year before



3380, 3390 drive types, U.S. sites

(percent of installed capacity)

IBM's 3390 has not yet displaced 3380 installations, accounting for only 3% of installed disk capacity of 3380 and 3390 drives



Respondent base: 7,330 U.S. IBM/plug-compatible mainframe sites

Average installed DASD capacity, U.S. sites

(average capacity per site in gigabytes)

The transportation and utilities industries average a greater DASD capacity per site than any other area with 97% provided by 3380-type drives

Source: Computer Intelligence, La Jolla, Calif.

NEXT WEEK

The centrally decentralized information systems model exists at Waste Management, Inc., the nation's largest trash hauler and landfill operator. IS chief **Edward Bacom** heads a central staff of 400 at the Oak Brook, Ill., headquarters but also leads a network of 10 "regional CIOs." Manager's Journal examines this hybrid IS structure.

Michael Abramson

The IS field has not been a very hospitable place for minorities. Whites far outnumber blacks, Hispanics and Asians in IS management and technical positions. But efforts are being made to reverse that trend through science and engineering training and mentoring. In Depth takes a look at what life in IS is like for minorities.

INSIDE LINES

Burning NET bridges?

Despite denials from both parties, those rumors of discord between IBM and its T1 switch partner Network Equipment Technologies are simply not going away. The latest fillip, reported by several reliable sources, is that IBM is now in the midst of a "heavy mating dance" with NET's rival, Newbridge. One good indicator of where IBM's affections now lie will be who becomes involved in a switch adjunct to the 3745, which IBM is supposed to announce by spring. Unlike the NET switches IBM now resells, this switch will be IBM-labeled and tightly coupled to both IBM's front end and Netview, our sources tell us.

What did Santa leave Lotus?

The elves tell us they left a June ship date for Lotus 1-2-3/W, the Microsoft Windows 3.0-compatible spreadsheet, and a possible October ship date for the Apple Macintosh version, which is appropriately code-named Houdini, as in "can Lotus pull a successful Macintosh rabbit out of a hat?" According to Forrester Research, Lotus is making Houdini compatible with Apple's System 7.0, which helps explain the tardiness.

Time does indeed tell

The persistent chorus of McCormack & Dodge loyalists who contend that their former firm has been/is being/will continue to be eradicated in the course of last year's avowed Merger of Equals with MSA got louder last week as Dun & Bradstreet Software said goodbye to yet another highly placed Dodger. Vice President Dean Redfern, one of only two members with McCormack & Dodge roots still sitting on the nine-man D&B Software executive committee, departed the firm "to pursue other opportunities." In his case, Redfern told a source close to *Computerworld*, the euphemism translates into an executive title that brings a real job along with it.

What was in their stockings?

About 25 hackers showed up for the Christmas Con hacker conference at a hotel just outside of Houston's airport during the December holidays. At least two of the hackers who attended the gathering were suspected of being security people from Baby Bell companies. After consuming too many beers and pulling fire alarms, the group was kicked out of the hotel.

DG listens for the cavalry charge

A sorely needed $1 billion contract with the U.S. Army Reserve may be in the offing for Data General by the end of 1991. Rumor has it that the bidding for the Army Reserve's Call Up system has dwindled down to two players: DG and Boeing Computer Services.

Now you see it, now you don't

Some users and analysts said that IBM's SX notebook is not the only laptop we'll see from IBM in 1991. According to sources, IBM is showing versions of a battery-powered SX-based laptop that will feature 80M-, 100M- and 120M-byte 2½-in. hard drives and weigh 7.8 to 8½ pounds. This box will also offer a radio frequency modem as an option, sources said, and will be available in June. However, an IBM spokesman expressed bewilderment at these reports.

Casting nets into Blue seas

Novell is expected to deliver Portable Netware for IBM's Application System/400 at the upcoming Networld show. With luck, Novell will have more success in the IBM arena then it has had with the Unix versions of Portable Netware.

Today's joint 3Com/Microsoft announcement seems to be something of a hot potato. 3Com first dropped word of the scheduled phone teleconference while a Microsoft official said he knew nothing about it, but if it was taking place, 3Com was arranging it. 3Com subsequently revealed that Microsoft's PR agency was setting things up. If you read Computerworld *on Dec. 17, you know they'll be announcing that 3Com is turning back its LAN Manager rights to Microsoft. The question is, whose idea was that? If you know, tip off News Editor Pete Bartolik at (800) 343-6474, or drop a message to* COMPUTERWORLD *on MCI Mail, MHTS78A on Prodigy or 76537,2413 on Compuserve.*

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